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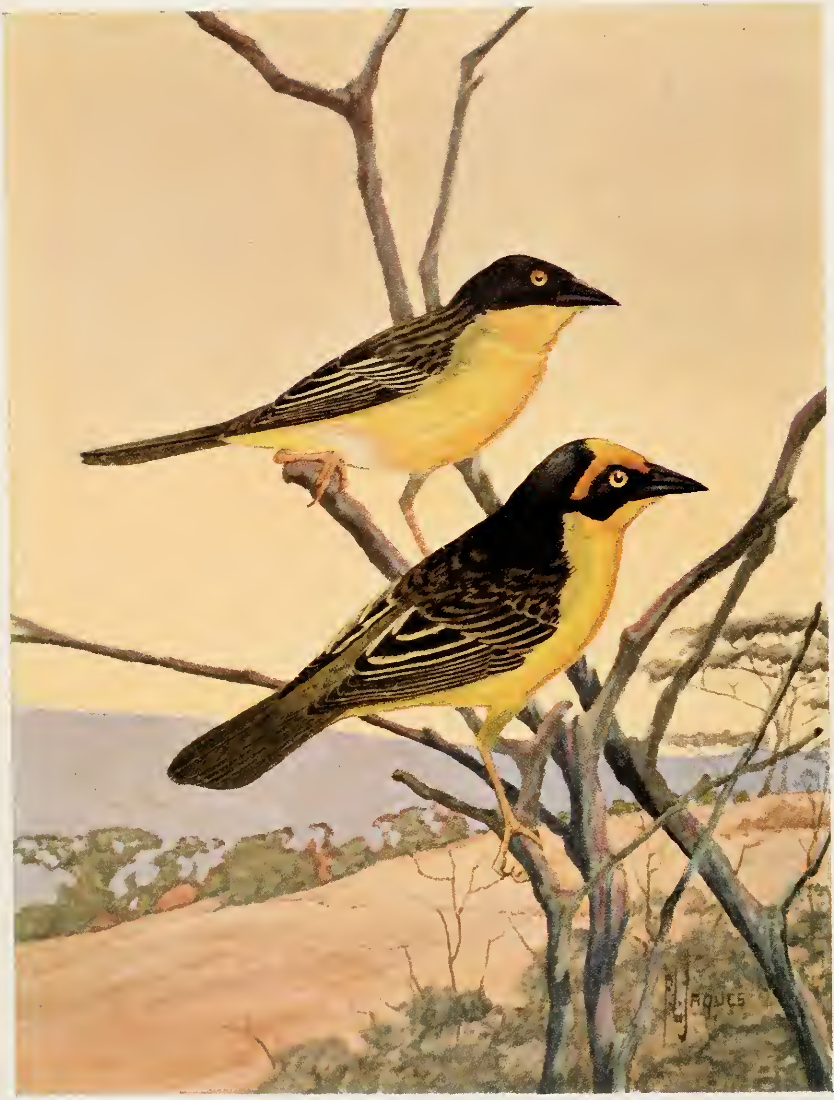

FRICK'S WEAVER, PLOCEUS FRICKI (MEARNS). MALE AND FEMALE

SMITHSONIAN INSTITUTION
UNITED STATES NATIONAL MUSEUM
BULLETIN 153

BIRDS COLLECTED BY THE CHILDS FRICK EXPEDITION TO ETHIOPIA AND KENYA COLONY

PART 2.—PASSERES

By

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SMITHSONIAN INSTITUTION
305606
JUN 23 1937
NATIONAL MUSEUM

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1937

For sale by the Superintendent of Documents, Washington, D. C. - - - - - - - - - - - - Price 70 cents

CONTENTS

Page
Introduction 1
Summary and conclusions 2
Zoogeographical considerations 3
ORDER PASSERIFORMES 15
Family Alaudidae 15
- Mirafra cantillans marginata 15
- Mirafra pulpa 17
- Mirafra albicauda 17
- Mirafra candida 19
- Mirafra hypermetra gallarum 19
- Mirafra africana athi 21
- Mirafra fischeri fischeri 22
- Mirafra fischeri degeni 23
- Mirafra africanoides intercedens 24
- Mirafra poecilosterna poecilosterna 25
- Alaemon alaudipes desertorum 28
- Galerida cristata somaliensis 29
- Galerida theklae praetermissa 30
- Eremopteryx leucotis leucotis 32
- Eremopteryx nigriceps melanauchen 34
- Eremopteryx signata 35
- Tephrocorys cinerea erlangeri 38

Family Hirundinidae 40
- Hirundo rustica rustica 40
- Hirundo lucida rothschildi 42
- Hirundo aethiopica 43
- Hirundo smithii smithii 44
- Hirundo rufula melanocrissa 45
- Hirundo rufula emini 47
- Hirundo senegalensis senegalensis 48
- Hirundo abyssinica abyssinica 50
- Riparia riparia riparia 52
- Riparia paludicola minor 53
- Ptyonoprogne rufigula rufigula 54
- Psalidoprocne holomelaena massaica 55
- Psalidoprocne antinorii 56

Family Campephagidae 57
- Campephaga flava flava 57
- Campephaga phoenicea 58
- Graucalus caesia pura 60

Family Dicruridae 61
- Dicrurus adsimilis divaricatus 61

Page

Family Oriolidae 65
- Oriolus auratus notatus 65
- Oriolus monacha permistus 66
- Oriolus monacha rolleti 71
- Oriolus monacha kikuyuensis 72

Family Corvidae 72
- Corvus albus 72
- Corvus capensis capensis 75
- Corvus corax edithae 76
- Corvultur albicollis 78
- Corvultur crassirostris 78
- Rhinocorax rhipidurus 80

Family Paridae 82
- Parus afer fricki 82
- Parus afer barakae 84
- Parus niger lacuum 84
- Parus albiventris albiventris 87
- Parus leuconotus 88
- Anthoscopus caroli rothschildi 89
- Anthoscopus musculus 90

Family Timeliidae 91
- Turdoides leucopygia smithii 91
- Turdoides leucopygia lacuum 93
- Turdoides leucopygia omoensis 94
- Turdoides hypoleuca 94
- Turdoides hindei 95
- Argya rubiginosa rubiginosa 96
- Argya aylmeri aylmeri 100
- Pseudoalcippe abyssinicus abyssinicus 101
- Lioptilornis galinieri 103

Family Pycnonotidae 105
- Pycnonotus dodsoni dodsoni 105
- Pycnonotus dodsoni spurius 109
- Pycnonotus dodsoni peasei 110
- Pycnonotus tricolor fayi 111
- Pycnonotus barbatus schoanus 112
- Phyllastrephus strepitans 115
- Phyllastrephus fischeri placidus 117
- Phyllastrephus cerviniventris lönnbergi 118
- Arizelocichla tephrolaema kikuyuensis 119
- Chlorocichla flaviventris centralis 120
- Andropadus insularis fricki 121
- Andropadus insularis kitungensis 122
- Stelgidocichla latirostris eugenia 122

Family Turdidae 124
- Turdus libonyanus centralis 124
- Turdus olivaceus elgonensis 126
- Turdus olivaceus abyssinicus 126
- Turdus tephronotus 128
- Geokichla litsipsirupa simensis 130
- Monticola saxatilis 131
- Petrophila rufocinerea rufocinerea 132
- Oenanthe oenanthe oenanthe 134

Family Turdidae—Continued.

Page
Oenanthe leucomela leucomela 134
Oenanthe lugubris 135
Oenanthe isabellina 136
Oenanthe bottae frenata 136
Cercomela melanura lypura 137
Cercomela scotocerca turkana 138
Cercomela dubia 140
Pinarochroa sordida schoana 140
Pentholaea melaena 142
Thamnolaea cinnamomeiventris subrufipennis 143
Thamnolaea cinnamomeiventris albiscapulata 144
Thamnolaea semirufa 144
Saxicola torquata axillaris 146
Saxicola torquata albofasciata 147
Saxicola torquata maura 147
Saxicola rubetra rubetra 149
Cossypha heuglini heuglini 149
Cossypha semirufa saturatior 150
Cossypha semirufa intercedens 152
Cossypha caffra iolaema 152
Cichladusa guttata guttata 153
Erythropygia leucoptera leucoptera 155
Pogonocichla margaritata keniensis 156
Cercotrichas podobe podobe 158
Phoenicurus phoenicurus phoenicurus 158
Phoenicurus phoenicurus samamisicus 158
Erithacus rubecula rubecula 159
Luscinia megarhyncha africana 159
Family Sylviidae 159
Sylvia curruca curruca 159
Sylvia communis communis 160
Sylvia atricapilla atricapilla 160
Hippolais pallida elaeica 161
Phylloscopus trochilus trochilus 162
Phylloscopus collybita collybita 163
Seicercus umbrovirens omoensis 163
Seicercus umbrovirens mackenziana 165
Bradypterus brachypterus abyssinicus 166
Bradypterus cinnamomeus 167
Bradypterus alfredi fraterculus 170
Calamonastes simplex simplex 171
Apalis cinerea cinerea 173
Apalis flavida flavocincta 175
Apalis flavida malensis 177
Phyllolais pulchella 178
Sylvietta brachyura hilgerti 179
Sylvietta brachyura leucopsis 180
Sylvietta whytii jacksoni 180
Sylvietta whytii abayensis 184
Sylvietta isabellina 185
Sylvietta leucophrys leucophrys 185
Eremomela griseoflava griseoflava 186
Eremomela griseoflava karamojensis 188

Family Sylviidae—Continued.

Page
Eremomela griseoflava flavicrissalis 189
Eremomela griseoflava abdominalis 190
Camaroptera brevicaudata abessinica 191
Camaroptera brevicaudata griseigula 195
Cisticola juncidis uropygialis 196
Cisticola juncidis perennia 196
Cisticola aridula lavendulae 197
Cisticola aridula tanganyika 197
Cisticola brunnescens brunnescens 198
Cisticola chiniana humilis 198
Cisticola chiniana ukamba 199
Cisticola chiniana bodessa 200
Cisticola hunteri prinioides 202
Cisticola galactotes lugubris 202
Cisticola galactotes nyansae 203
Cisticola robusta robusta 204
Cisticola natalensis inexpectata 204
Cisticola natalensis kapitensis 205
Cisticola brachyptera katonae 206
Cisticola nana 207
Cisticola cinereola cinereola 208
Cisticola cinereola schillingsi 209
Melocichla mentalis orientalis 209
Spiloptila rufifrons rufifrons 209
Spiloptila rufifrons smithii 211
Prinia mistacea mistacea 212
Prinia mistacea immutabilis 215
Prinia somalica erlangeri 216
Family Muscicapidae 217
Muscicapa striata striata 217
Alseonax minimus djamdjamensis 217
Hypodes cinereus kikuyuensis 220
Parisoma plumbeum plumbeum 221
Bradornis microrhynchus microrhynchus 225
Bradornis microrhynchus erlangeri 226
Bradornis microrhynchus pumilus 228
Bradornis pallidus suahelicus 228
Dioptrornis fischeri fischeri 229
Dioptrornis chocolatinus chocolatinus 229
Melaenornis edolioides lugubris 231
Melaenornis pammelaina tropicalis 233
Chloropeta natalensis similis 234
Batis molitor puella 236
Batis minor erlangeri 237
Batis orientalis bella 239
Batis perkeo 240
Platysteira cyanea aethiopica 242
Platysteira peltata jacksoni 242
Terpsiphone viridis ferreti 243
Family Motacillidae 246
Motacilla alba alba 246
Motacilla aguimp vidua 247
Motacilla clara 247

Family Motacillidae—Continued.

Page
Motacilla cinerea cinerea 248
Budytes flavus flavus 249
Budytes flavus cinereocapilla 249
Budytes feldegg feldegg 250
Anthus campestris campestris 251
Anthus nicholsoni hararensis 251
Anthus nicholsoni neumannianus 252
Anthus richardi cinnamomeus 253
Anthus gouldii turneri 254
Anthus gouldii omoensis 255
Anthus rufogularis 256
Tmetothylacus tenellus 256
Macronyx croceus croceus 259
Macronyx aurantiigula 259
Macronyx flavicollis 260
Family Laniidae 261
Lanius excubitor pallidirostris 261
Lanius collaris humeralis 263
Lanius somalicus somalicus 265
Lanius dorsalis 268
Lanius cabanisi 270
Lanius excubitorius intercedens 270
Lanius senator niloticus 273
Lanius cristatus phoenicuroides 275
Laniarius funebris funebris 275
Laniarius funebris degener 279
Laniarius ferrugineus aethiopicus 280
Dryoscopus cubla hamatus 283
Dryoscopus gambensis erythreae 285
Dryoscopus pringlii 287
Pomatorhynchus australis littoralis 287
Pomatorhynchus senegalus erythropterus 289
Pomatorhynchus senegalus erlangeri 291
Pomatorhynchus jamesi jamesi 299
Chlorophoneus sulfureopectus fricki 302
Chlorophoneus sulfureopectus suahelicus 305
Telophorus dohertyi 306
Malaconotus poliocephalus approximans 307
Malaconotus poliocephalus schoanus 309
Rhodophoneus cruentus cruentus 310
Rhodophoneus cruentus hilgerti 312
Nicator chloris gularis 314
Family Prionopidae 315
Prionops poliocephalus poliocephalus 315
Prionops cristata cristata 317
Prionops cristata melanoptera 320
Sigmodus retzii graculinus 320
Eurocephalus rüppelli rüppelli 322
Eurocephalus rüppelli erlangeri 325
Nilaus brubru minor 326
Family Sturnidae 328
Creatophora cinerea 328
Cinnyricinclus leucogaster friedmanni 330

Family Sturnidae—Continued. Page

Cinnyricinclus leucogaster lauragrayae 331
Pholia sharpii 332
Speculipastor bicolor 332
Lamprocolius chalybeus chalybeus 333
Lamprocolius splendidus splendidus 334
Lamprotornis purpuropterus purpuropterus 334
Cosmopsaris regius magnificus 336
Onychognathus walleri walleri 338
Onychognathus morio ruppellii 340
Onychognathus tenuirostris 340
Galeopsar salvadorii 342
Spreo shelleyi 343
Spreo superbus 344
Buphagus erythrorynchus erythrorynchus 345
Buphagus erythrorynchus caffer 346
Family Nectariniidae 346
Nectarinia tacazze 346
Nectarinia kilimensis kilimensis 347
Nectarinia pulchella lucidipectus 348
Nectarinia melanogastra nectarinoides 350
Nectarinia reichenowi 351
Cinnyris habessinicus habessinicus 352
Cinnyris mariquensis suahelicus 354
Cinnyris mariquensis osiris 355
Cinnyris venustus blicki 356
Cinnyris venustus fazoqlensis 360
Cinnyris venustus falkensteini 360
Cinnyris mediocris mediocris 361
Cinnyris reichenowi reichenowi 362
Chalcomitra senegalensis lamperti 363
Chalcomitra hunteri 364
Chalcomitra cruentata 365
Cyanomitra olivacea ragazzii 366
Anthreptes collaris ugandae 367
Anthreptes orientalis orientalis 367
Family Zosteropidae 369
Zosterops senegalensis frieki 369
Zosterops senegalensis jubaensis 370
Zosterops virens kikuyuensis 371
Zosterops abyssinicus abyssinicus 374
Zosterops poliogaster 374
Family Ploceidae 376
Bubalornis albirostris intermedius 376
Dinemellia dinemelli dinemelli 377
Plocepasser mahali melanorhynchus 379
Plocepasser donaldsoni 381
Pseudonigrita arnaudi kapitensis 383
Pseudonigrita cabanisi 385
Passer iagoensis rufocinctus 386
Passer castanopterus fulgens 387
Passer griseus swainsonii 389
Passer gongonensis 390
Sorella eminibey 392

Family Ploceidae—Continued.

	Page
Gymnoris pyrgita pyrgita	393
Gymnoris pyrgita massaica	394
Sporopipes frontalis cinerascens	395
Ploceus reichenowi reichenowi	397
Ploceus fricki	397
Ploceus baglafecht baglafecht	399
Ploceus emini emini	400
Ploceus luteolus luteolus	401
Ploceus intermedius intermedius	402
Ploceus vitellinus uluensis	403
Ploceus cucullatus abyssinicus	406
Ploceus rubiginosus rubiginosus	407
Ploceus ocularius abayensis	408
Ploceus nigricollis melanoxanthus	409
Ploceus bojeri	410
Ploceus galbula	411
Amblyospiza albifrons montana	412
Anaplectes melanotis	414
Quelea quelea aethiopica	415
Quelea cardinalis pallida	418
Euplectes hordeacea craspedoptera	420
Euplectes franciscana pusilla	422
Euplectes capensis xanthomelas	423
Euplectes capensis kilimensis	427
Urobrachya axillaris traversii	428
Coliuspasser albonotatus eques	429
Coliuspasser ardens suahelica	430
Drepanoplectes jacksoni	432
Spermestes cucullatus scutatus	432
Euodice cantans meridionalis	434
Odontospiza caniceps	436
Amadina fasciata alexanderi	437
Hypargos niveoguttatus	438
Pytilia afra	439
Pytilia melba soudanensis	440
Lagonosticta rubricata rhodopareia	443
Lagonosticta senegala brunneiceps	445
Lagonosticta senegala abayensis	447
Lagonosticta senegala kikuyuensis	447
Coccopygia melanotis quartinia	448
Estrilda astrild minor	449
Estrilda astrild peasei	451
Estrilda rhodopyga rhodopyga	451
Estrilda rhodopyga centralis	452
Estrilda paludicola ochrogaster	452
Estrilda charmosyna charmosyna	453
Uraeginthus bengalus schoanus	455
Uraeginthus bengalus brunneigularis	457
Granatina ianthinogaster ianthinogaster	457
Granatina ianthinogaster ugandae	458
Vidua macroura	460
Vidua hypocherina	463

Family Ploceidae—Continued. Page
- Vidua fischeri 464
- Steganura paradisaea 464

Family Fringillidae 465
- Serinus dorsostriatus maculicollis 465
- Serinus flavivertex flavivertex 467
- Poliospiza tristriata tristriata 468
- Poliospiza atrogularis reichenowi 469
- Poliospiza striolata striolata 471
- Linurgus kilimensis kilimensis 473
- Spinus citrinelloides citrinelloides 474
- Spinus nigriceps 475
- Emberiza poliopleura 475
- Emberiza hortulana 477
- Fringillaria tahapisi tahapisi 477
- Fringillaria striolata saturatior 478

Index 481

ILLUSTRATIONS

TEXT FIGURES

Figure — Page

1. Vegetation map of northeastern Africa — 10
2. Annual rainfall map of northeastern Africa — 11
3. Faunal areas of northeastern Africa — 13
4. Distribution of *Mirafra poecilosterna* — 26
5. Distribution of *Eremopteryx leucotis* — 33
6. Distribution of *Oriolus monacha* — 67
7. Outermost rectrices of five specimens of *Oriolus monacha permistus* to show variation, with a figure of the same feathers of *O. m. monacha* for comparison — 68
8. Distribution of *Parus niger* — 86
9. Distribution of *Turdoides leucopygia* — 91
10. Distribution of *Pycnonotus dodsoni* — 107
11. Distribution of *Pycnonotus barbatus* — 113
12. Distribution of *Turdus libonyanus* — 125
13. Distribution of *Sylvietta whytii* — 182
14. Distribution of *Eremomela griseoflava* — 187
15. Distribution of *Camaroptera brevicaudata* — 192
16. Right outermost rectrix of *Lanius excubitorius intercedens* to show variation — 272
17. Distribution of *Pomatorhynchus senegalus* — 295
18. Distribution of *Pomatorhynchus jamesi* — 300
19. Distribution of *Onychognathus walleri* — 339
20. Distribution of *Cinnyris venustus* — 358
21. Distribution of *Zosterops virens* — 372
22. Distribution of *Pseudonigrita arnaudi* — 384
23. Distribution of *Sporopipes frontalis* — 396
24. Heads of males of *Ploceus luteolus luteolus* to show variation in extent of black area — 402
25. Distribution of *Amblyospiza albifrons* — 413
26. Distribution of *Quelea cardinalis* — 419
27. Distribution of *Euplectes capensis* — 424
28. Relative dimensions of the tail of *Euplectes capensis xanthomelas* and *E. c. kilimensis* — 426
29. Distribution of *Lagonosticta senegala* — 446
30. Distribution of *Estrilda astrild* — 450

PLATES

Plate

1. Frick's weaver (*Ploceus fricki*) — Frontispiece

Following Page

2. Thick-billed raven (*Corvultur crassirostris*) and pied crow (*Corvus albus*)
3. Ravens and vultures; colony of weaverbirds' nests — 479
4. Two views in the Arussi Highlands — 479

Plate Following Page
5. Two views in Sidamo 479
6. Near Sagon River; Lower Boran 479
7. Two views in Boran 479
8. Two views in Boran 479
9. East of Mount Chilalo; Mount Kaka region 479
10. Waterfall near Hawash Station; acacia grove near Hawash Station 479
11. Valley of Webi Shebelli 479
12. East shore of Lake Rudolf 479
13. Northern Guaso Nyiro River 479
14. View looking south from Northern Guaso Nyiro River 479

BIRDS COLLECTED BY THE CHILDS FRICK EXPEDITION TO ETHIOPIA AND KENYA COLONY

Part 2.—PASSERES

By Herbert Friedmann

Curator, Division of Birds, United States National Museum

INTRODUCTION

The two volumes comprising this report on the ornithological work of the Childs Frick expedition may be looked upon as a memorial to the late Dr. Edgar Alexander Mearns, to whose untiring energy and unflagging zeal is due the great bulk of the material collected. Dr. Mearns was in rather poor health when he joined the Frick expedition, and he was urged on by the desire to add to the collections he had amassed the previous year when with Colonel Roosevelt in Kenya Colony, Uganda, and the Sudan, thereby to enable him to make a more thorough contribution to African ornithology. The vast number of specimens he gathered together during the course of the Frick expedition would have been greatly to the credit of a collector in the prime of health to say nothing of one in Mearns's physical condition. Probably no more indefatigable collector ever roamed on African soil. When one realizes that the actual time the Frick expedition was in Africa was less than 10 months and that the party was almost constantly on the move, the fact that Mearns collected approximately 5,200 birds besides a number of nests and eggs, and filled a number of notebooks with observational data, reveals in an unmistakable way his great ardor, diligence, and industry.

For the photographs reproduced in this volume I am greatly indebted to Dr. W. H. Osgood, of the Field Museum of Natural History, who has kindly allowed me to use pictures taken by him and his associates, Alfred M. Bailey and J. C. Albrecht, during the Field Museum's Daily News expedition to Ethiopia. To A. B. Fuller, of the Cleveland Museum of Natural History, I am indebted for the north Kenyan photographs (pls. 12–14).

For loan of material for comparative studies I am indebted to the authorities of the American Museum of Natural History, the Museum of Comparative Zoology, the Academy of Natural Sciences of Philadelphia, the Field Museum of Natural History, and the Cleveland Museum of Natural History.

The manuscript of the present volume was completed in January 1932. In October 1936 it was revised as far as more recent literature required, but it was found necessary to hold such revisions to the minimum, for it was not possible to restudy the whole collection, and furthermore a number of important papers were not available at the time.

SUMMARY AND CONCLUSIONS

Results.—Because of the unfortunately premature death of Doctor Mearns, the materials he collected were left unworked for a considerable number of years, during which time many birds present in his collection were described elsewhere. In tabulating the results of the expedition, I have included as forms new to science only those species and subspecies described from this collection by Mearns or others that are considered valid at the time of the present writing.

FORMS NEW TO SCIENCE

Francolinus africanus friedmanni.
Stephanibyx coronatus suspicax.
Rhinoptilus africanus raffertyi.
Otus senegalensis caecus.
Mirafra pulpa.
Mirafra candida.
Parus afer fricki.
Phyllastrephus cerviniventris lönnbergi.
Andropadus insularis fricki.
Bradypterus alfredi fraterculus.
Sylvietta whytii abayensis.
Cisticola chiniana bodessa.
Chlorophoneus sulfureopectus fricki.
Cinnyricinclus leucogaster friedmanni.
Cinnyris venustus blicki.
Zosterops senegalensis fricki.
Passer castanopterus fulgens.
Ploceus fricki.
Quelea cardinalis pallida.
Euodice cantans meridionalis.

Besides these a good number of other birds were described from other sources in connection with the study of the Frick expedition material, and a larger number were named by Mearns from the collections made by the Smithsonian African expedition under the late Colonel Roosevelt. A report upon this important expedition is now in manuscript.

BIRDS RECORDED FOR THE FIRST TIME FROM ETHIOPIA

Melierax metabates neumanni.
Stephanibyx coronatus suspicax.
Rhinoptilus africanus raffertyi.
Pterocles senegalensis somalicus.
Streptopelia capicola somalica.
Streptopelia roseogrisea arabica.
Clamator jacobinus hypopinarus.
Clamator serratus serratus.
Otus senegalensis caecus.
Carine noctua somaliensis.
Cypsiurus parvus myochrous.
Trachyphonus erythrocephalus jacksoni.
Indicator minor erlangeri.
Mirafra pulpa.
Mirafra albicauda.
Parus afer fricki.
Luscinia megarhyncha africana.
Sylvietta whytii abayensis.
Cisticola chiniana bodessa.
Chlorophoneus sulfureopectus fricki.
Cinnyris venustus blicki.
Passer castanopterus fulgens.
Gymnoris pyrgita massaica.
Ploceus fricki.
Odontospiza caniceps.

BIRDS RECORDED FOR THE FIRST TIME FROM KENYA COLONY

Aquila verreauxi.
Clamator jacobinus hypopinarus.
Otus senegalensis caecus.
Indicator variegatus jubaensis.
Indicator minor erlangeri.
Mirafra candida.
Hirundo rufula melanocrissa.
Phyllastrephus cerviniventris lönnbergi.
Andropadus insularis fricki.
Bradypterus alfredi fraterculus.
Prionops cristata melanoptera.
Cinnyris venustus blicki.
Zosterops senegalensis fricki.
Passer castanopterus fulgens.
Quelea cardinalis pallida.

BIRDS RECORDED FOR THE FIRST TIME FROM FRENCH SOMALILAND

Pisobia minuta.
Glottis nebularia.
Halcyon leucocephala hyacinthina (specimen recorded in this report, but not collected by the Frick expedition).

EXTENSIONS OF RANGE, NOT INVOLVING ADDITIONS TO THE FAUNA OF ANY OF THE THREE COUNTRIES DEALT WITH ABOVE. (THE EXTENSIONS OF RANGE VARY FROM SMALL TO GREAT ONES, BUT ALL ARE DEFINITELY NEW LIMITS FOR THE FORMS IN QUESTION)

Ardeola ralloides.
Torgos tracheliotus nubicus.
Acryllium vulturinum.
Rougetius rougetii.
Choriotis arabs arabs.
Choriotis kori struthiunculus.
Stephanibyx lugubris.
Eremialector lichtensteinii hyperythrus.
Tympanistria tympanistria fraseri.
Gymnoschizorhis personata.
Caprimulgus stellatus simplex.
Halcyon pallidiventris.
Melittophagus revoilii.
Phoeniculus purpureus marwitzi.
Phoeniculus purpureus niloticus.
Prodotiscus regulus peasei.
Parus afer barakae.
Parus niger lacuum.
Anthoscopus caroli rothschildi.
Turdoides leucopygia omoensis.
Argya aylmeri aylmeri.
Phyllastrephus strepitans.
Turdus tephronotus.
Cercomela dubia.
Pogonocichla margaritata keniensis.
Cercotrichas podobe podobe.
Bradypterus brachypterus abyssinicus.
Eremomela griseoflava abdominalis.
Cisticola aridula lavendulae.
Hypodes cinereus kikuyuensis.
Macronyx aurantiigula.
Dryoscopus pringlii.
Pomatorhynchus australis littoralis.
Speculipastor bicolor.
Onychognathus walleri walleri.
Nectarinia reichenowi.
Chalcomitra cruentata.
Sorella eminibey.
Ploceus bojeri.
Euplectes capensis kilimensis.
Pytilia afra.
Estrilda paludicola ochrogaster.
Linurgus kilimensis kilimensis.
Fringillaria striolata saturatior.

ZOOGEOGRAPHICAL CONSIDERATIONS

Lönnberg[1] has amassed a considerable array of evidence indicating that in the past, probably during the Miocene, the African Continent was covered with a great unbroken forest, which extended over practically the whole continent with the probable exception of South Africa. The present lowland wooded areas are taken to be surviving pieces of this former forest, and the vast expanse of steppe and savannah country that now occupies so much of eastern Africa, to say nothing of the true deserts in the Kalahari and Sahara, are considered as much more recent in origin than the lowland forests. In other words, vast stretches of wooded land became drier and the trees gave way to the more arid vegetation of the savannahs. With this tremendous ecological change in the flora came an equally marked change in the fauna. As Lönnberg (pp. 13, 14) remarks—

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[1] Arkiv för Zool., vol. 21A, no. 4, pp. 1–33, 1929.

> * * * a certain number of forest animals were able to survive and more or less accommodate themselves to a life on the steppe, since the forests had been destroyed. The steppe fauna would, however, have been very poor indeed, if an invasion from abroad had not taken place. Recent discoveries have also revealed that such an invasion began already in Pliocene. * * * Thus quite a new fauna including many members typically adapted to lead a life on a steppe had made its appearance on the African soil.
>
> The question then arises from where did it come? Certainly from the northeast and north, because through upheaval Africa now had become broadly connected with Asia and secondarily also with Europe. At Pikermi in Greece, on Samos and in the Siwalik Hills in Northern India and other places have been found great quantities of fossils, * * * among them many mammals, which stand in close relationship to the African steppe fauna, as giraffes, antelopes, horses, etc. The new African fauna has thus without doubt come about this way.

In other words, the fauna that flourished in the steppes of central and south-central Asia during the Pliocene is very similar to the present-day life of the east African plains. When the connection between Africa and Asia by means of Asia Minor and Arabia was established, a fully developed savannah and steppe fauna was ready to spread over the open country of Africa at once. The exodus from the Asiatic steppes to the African grasslands was probably a very rapid one and one of a magnitude without a parallel in other regions of the world.

> Thus arrived the ancestors of all those mammals, that we regard as typical for the African steppe, as antelopes, buffaloes, giraffes, zebras, rhinoceroses (of modern type), * * * hyenas and a lot of other carnivorous mammals.
>
> This new fauna consisted, however, not only of mammals but also of birds and reptiles etc., which, although they now * * * are regarded as typical Africans, in reality originated from Asia.

Thus, we have fossil evidence of ostriches in Mongolia (*Struthiolithus*) and a living form in the Arabian–Syrian desert, linking up with the well-known ostriches of the African plains. There could have been no ostriches in Africa before the forest gave way to the grasslands, and the Mongolian fossil form is of the same age as the transcontinental African forest. Therefore, it is clear that the ostrich must be regarded as originally Asiatic and only secondarily African. As the large mammals of the steppes poured into Africa with the attendant swarms of carnivores preying on them, the vultures probably followed them from Asia. The marabou stork (*Leptoptilus*) probably did likewise. In fact, many families of birds, such as larks, pipits, and many of the finches, must have come into Africa after the drying up had eliminated much of the forest that originally covered the continent. This same reasoning could similarly be applied to the cranes, bustards, sandgrouse, and other groups.

The presence of a number of essentially Oriental types of birds (such as *Smithornis*, *Pseudocalyptomena*, *Pitta*, and *Pseudochelidon*) in the forests of west Africa, and likewise of a number of mammals of Indian or Malayan affinities, suggests that there must have been a connection between the primitive African continental forest and the woods of southern Asia. The drying up of eastern Africa with the resulting disappearance of the forest there accounts for the fact that these forms are now so widely isolated. The evidence, briefly touched on in the preceding paragraphs, indicates that once the African Continent started drying up (fossil trees in present desert regions are good evidence of drying) and began to be a land of limitless plains, the path by which much of the life now flourishing there came to enter it was by way of northeastern Africa, that is, the Somali-Ethiopian region.

The general region of immediate interest to us is then one that must be looked upon in two ways—as the original home of a number of birds, and as the area through which passed a far greater number of forms now found to the southward. Some of these latter birds remained, others went on; some probably were changed, others not, during their sojourn in Ethiopia.

A very striking point that can not be satisfactorily explained in the light of present knowledge is the number of genera of birds found in northeastern Africa and in South Africa and not in between. All are lowland, or semilowland, forms, chiefly larks of the genera *Heteromirafra*, *Certhilauda*, and *Spizocorys*, although one is a ralline genus, *Coturnicops*, and one is a group of bustards, *Heterotetrax*. In addition to these, three other genera are found in Mediterranean Africa, or Eurasia, as well as in northeast and southern Africa—*Geronticus* (including *Comatibis*), *Gyps*, and *Ammomanes*. Of these, *Geronticus* and *Gyps* are denizens of the higher parts of the mountains; *Ammomanes* occurs lower down. These cases are not comparable to the larger number of species or genera that range from Eritrea to South Africa, *including the intermediate areas of eastern Africa;* they are all cases involving an enormous geographical break or gap. Their sheer number, especially in a single family like the larks, indicates that they are not mere coincidences, but must be the results of similar distributional complexes. What their true significance may be is unknown as yet.

Bannerman[2] writes that there are some rather striking similarities in the bird fauna of the Cameroon–Nigerian mountains and those of Shoa, more than 1,700 miles distant. Here, however, we find no genera restricted only to these two areas, and hence we may conclude that the faunal relationships may be less ancient and profound than those existing between northeastern Africa and South Africa.

If we may consider the number of forms found in northeastern Africa and extending southward through eastern Africa as opposed to those ranging westward to the Upper Guinean savannahs as a criterion of the trend of the dispersal of the savannah and steppe birds, we find that the great majority went southward and not westward. The birds of the Upper Guinean savannahs seem to have been derived as much from Mediterranean Africa as from the northeastern part of the continent. Some forms occur in both the Sudanese and the eastern African grasslands, but this is probably due to subsequent dispersal after their arrival in Africa. Among forms the ancestors of which went westward and not southward from northeastern Africa may be mentioned the ground hornbill (*Buceros abyssinicus*), the parakeet (*Psittacula krameri*), the roller (*Coracias abyssinicus*), and the chat (*Oenanthe bottae*). Among the many forms that spread southward and not westward were the ancestors of such birds as *Francolinus sephaena*, *Francolinus africanus*, *Streptopelia capicola*, *Lophoceros melanoleucos*, *Mirafra africanoides*, *Anthus nicholsoni*, and *Turdus olivaceus*.

Our knowledge of the topographic history of northeastern Africa is still too fragmentary and uncertain to enable us to attempt a space-time analysis of the dispersal of the birds found there and in adjacent areas, and we must therefore limit ourselves to a descriptive account of the present distributional facts. We may begin by stating that the faunal areas laid down by Chapin[3] have been found to hold, and no reasons have been unearthed for making any serious alterations in his map. The collections gathered by the Frick expedition were made principally in two faunal areas—the Somali Arid and the Abyssinian Highland. Each of these is further subdivided, as will be seen later. For the sake of completeness, however, we may include in our discussion the eastern extension of the Sudanese Arid belt (the North Somali region of Neumann, Erlanger, and others) as well. Inasmuch as only a small number of specimens (and species) were obtained in the East African Highland region, we need not concern ourselves with it, especially as it has been the subject of much study by van Someren and others.

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[2] The birds of Tropical West Africa, etc., vol. 1, p. xli, 1930.

[3] Amer. Nat., vol. 57, pp. 106–125, 1923.

1. The eastern extension of the Sudanese Arid region covers all but the highlands of Eritrea and adjacent parts of northeastern Ethiopia and of northern French Somaliland. Faunally, it is differentiated by the presence of several palearctic forms, especially among the larks (*Galerida*, *Alaemon*, etc.), and the rufous warbler (*Agrobates galactotes*). Although generally arid and consequently poor in vegetation the region is not uniformly so, as more luxuriant growths of euphorbias occur along the banks of the periodic streams. (Pl. 11.) According to Zedlitz,[4] the coastal belt of Eritrea and the Danakil lowlands have their rains in winter, while the highlands get their precipitation during summer. Zedlitz considers the coastal lowland belt a distinct faunal zone, which may be looked upon as a subdivision of the Sudanese Arid.

2. The Somali Arid. This region takes in practically all of French, British, and Italian Somililand (except the extreme northern tip of French Somaliland and the highlands of British Somaliland), the eastern part of the Hawash Valley (pl. 10), Gallaland and southern Boran (pls. 5–8), the northern half or so of Kenya Colony, and most of northeastern Uganda. On the whole, it may be characterized as a dry acacia and mimosa country, with considerable barren stretches relieved by more luxuriant growths of such plants as euphorbias along the banks of the seasonal rivers. It is described by Erlanger[5] as a series of terraces. As one goes successivly higher and away from the sea, especially in the northern part of this region (eastern Hawash, French Somaliland, etc.), one finds more and more of a truly African fauna and less of a palearctic tinge.

Roughly the Somali Arid may be divided into two subregions—a Northern Somali and a Southern Somali. The former may be limited in a southward direction at approximately the southern border of British Somaliland. The latter subregion is relatively flatter, less a series of sharp, abrupt terraces than the former, but both are varied ecologically, as may be seen from the vegetation map. Along the coast both are covered with desert scrub and desert grass, while in the interior they are largely acacia-desert grass savannahs, interrupted by strips of thorn forest along the stream banks. The annual rainfall increases from less than 10 inches on the coast to nearly 20 inches in the interior.

Some of the birds characteristic of the Northern Somali region are as follows:

Buteo rufofuscus archeri.
Heterotetrax humilis.
Neotis heuglini.
Cursorius cursor somaliensis.

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[4] Journ. für Orn., 1910, p. 292.

[5] Ber. Senck. Naturf. Ges., 1902, pp. 155–170.

Eremialector lichtensteinii abessinicus.
Streptopelia decipiens griseiventris.
Streptopelia capicola hilgerti.
Carine noctua somaliensis.
Mirafra sharpei.
Parisoma leucomelaena somaliensis.
Cercomela melanura lypura.
Apalis flavida viridiceps.
Eremomela griseoflava archeri.
Prinia somalica somalica.
Eurocephalus ruppelli erlangeri.
Lanius antinorii antinorii.
Rhodophoneus cruentus cruentus.
Onychognathus blythii.

A few comparable forms typical of the Southern Somali area are:

Francolinus sephaena jubaensis.
Eupodotis canicollis somaliensis.
Cursorius cursor littoralis.
Eremialector lichtensteinii hyperythrus.
Streptopelia decipiens elegans.
Streptopelia capicola somalica.
Streptopelia reichenowi.
Mirafra collaris.
Anthus nicholsoni nivescens.
Bradornis bafirawari.
Erythropygia hamertoni.
Apalis flavida malensis.
Eremomela griseoflava flavicrissalis.
Prinia somalica erlangeri.
Eurocephalus rueppelli deckeni.
Nilaus brubru minor.
Lanius dorsalis.
Lanius somalicus mauritii.
Laniarius ruficeps.
Pomatorhynchus jamesi.
Rhodophoneus cruentus hilgerti.
Cosmopsaris regius.
Galeopsar salvadorii.

3. The Abyssinian Highland Area. This comprises the largest highland area in Africa, and, as far as the very meager geological data indicate, the oldest mountainous area in the continent. It may be described roughly as a high plateau fringed and spotted with mountain ranges and broken into two parts by the faulting of the Rift Valley. Because of the abruptness of the escarpment on the north, west, and east, the highland region is unusually well defined geographically. The southern escarpment is less precipitous, but yet readily mapped. The greatest altitudes are attained in the north where the Simien Mountains tower over 15,000 feet; the lowest altitudes are in the south where the hills of Sidamo and southern Shoa come to only a little over 4,000 feet. (Pl. 4.)

The mountainous masses in this area appear to be largely older than the Rift Valley, whereas in Kenya Colony and Tanganyika Territory the high, more or less isolated peaks are younger than the Rift Valley, the faulting of which is, indeed, looked upon as one of the precipitating causes of their formation.[6] The parts of the Rift Valley studied in the field by Gregory, Willis, and other investigators have been farther to the south—in Kenya Colony, Tanganyika Territory, and along the eastern border of the Belgian Congo, but the relatively few geologists who have made observations in Ethiopia seem convinced that the Rift cut the previously elevated highlands of Mesozoic age, and that the subsidence and inundation by lava of the Red Sea border land were contemporaneous with it. The valley of the Hawash River, which forms part of the Rift Valley, may serve as a typical section of it. It forms a troughlike valley about 3,000 feet deep, a sheer cut in the elevated plateau of eastern Ethiopia. The eastern escarpment of the highlands in that region averages about 7,500 feet in height. Just south of the Hawash a range of mountains, the Harrar highlands, extends eastward and was probably originally connected with the mountains of Yemen in southwestern Arabia.

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[6] See J. W. Gregory's excellent book, "The Great Rift Valley", 1896.

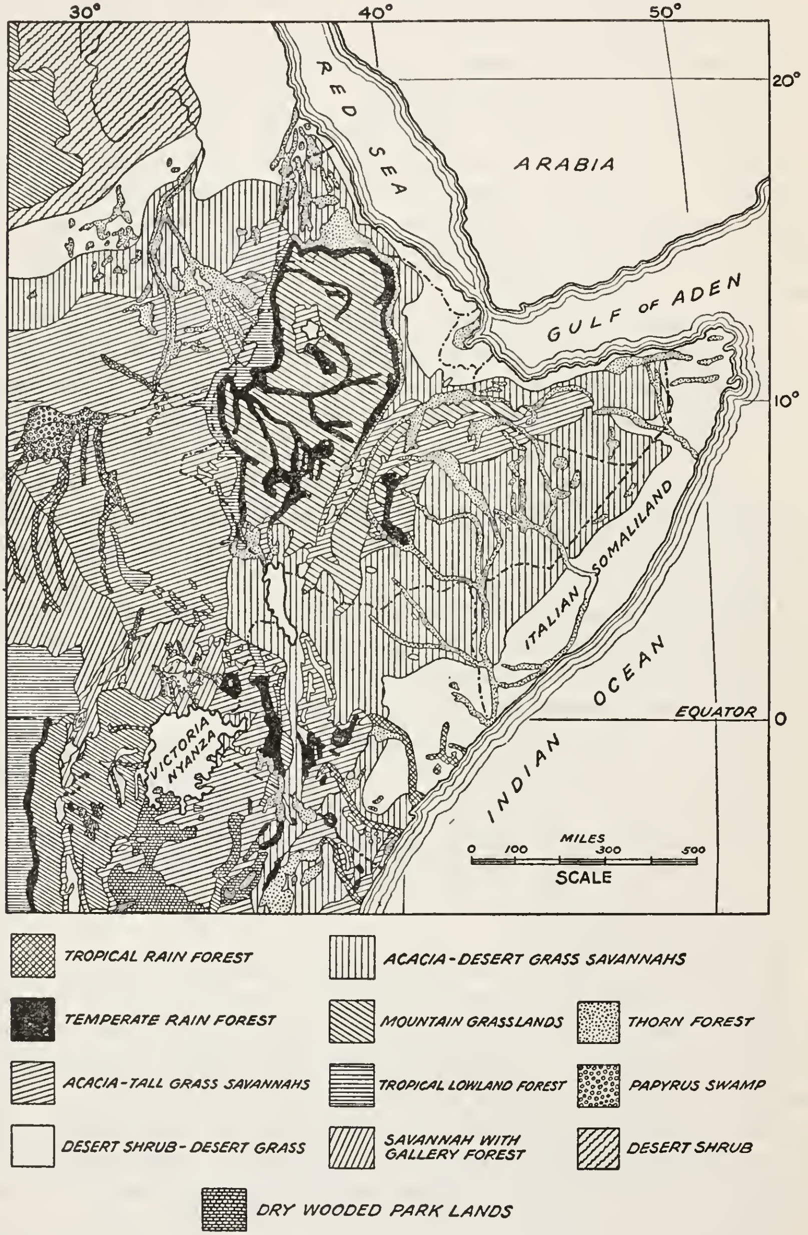
In the northern portion of the highlands is an extensive basin of lesser altitude. This depression contains Lake Tsana. The northern escarpment is deeply cut by narrow chasms of great depth and has, generally speaking, more abrupt, rugged peaks than the southern highlands, which are more like tableland savannahs broken only here and there by deep gorges.

The drainage systems of the highland region are as follows: By far the greatest portion of the territory drains into the Nile system, chiefly by means of three tributary rivers—the Taccazé in the north, the Sobat in the south, and the Blue Nile, or Abbai, in the middle. This takes care of the great northern mountains and plateau. Drainage to the east is conducted by the Hawash River; to the southeast (into Gallaland) by the Webi Shebelli (pl. 11) and the Juba; while the waters of the southwestern corner of the highlands are carried by the Omo to Lake Rudolf (pl. 12).

As far as vegetational features are concerned, a glance at the floral map (fig. 1) will show that the highlands north and west of the Rift Valley are largely mountain grasslands with intertwining strips of temperate rain forest, the actual escarpments being covered with thorn forest. The highlands to the south and east of the Rift Valley are covered with mountain grass only in their western parts, the eastern areas being largely acacia-tall grass savannahs; both broken by thorn forest and, in Arussi Gallaland (pl. 4), by temperate rain forest. The Rift Valley itself is largely covered with the acacia-tall grass association, although at its northern end it acquires a more arid, desert grass vegetation.

On the whole, the climate is temperate, ranging from decidedly subtropical in the lower, southern areas to alpine in the very high localities. Some of the highest peaks of the Simien Range are said to retain some snow the year through. The rainfall is heavier than in the more arid lowlands of Somaliland and northern Kenya Colony, varying, according to region, from 20–30 to 60–70 inches a year. It is a rather remarkable fact, but the rainfall is consistently very definitely less in the Rift Valley than in the highlands on either side (fig. 2).

The rainy season, roughly, may be said to last from the middle of June to the end of September, the rest of the year being fairly dry. There is, however, a period of lesser rains during March. The actual time of the start and finish of the rains varies somewhat in different parts of the highlands. On the whole, the rains commence and finish earlier in the north than in the south.


30°
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RED SEA
ARABIA
GULF OF ADEN
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INDIAN OCEAN
EQUATOR
VICTORIA NYANZA
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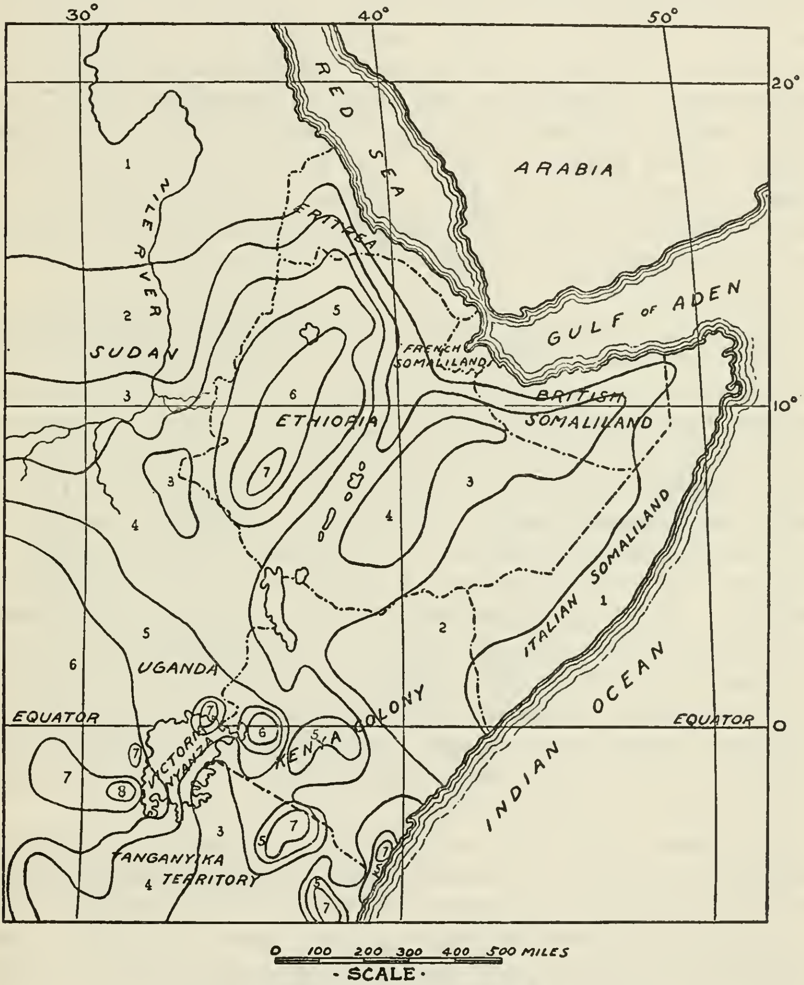
SCALE
TROPICAL RAIN FOREST
TEMPERATE RAIN FOREST
ACACIA-TALL GRASS SAVANNAHS
DESERT SHRUB-DESERT GRASS
ACACIA-DESERT GRASS SAVANNAHS
MOUNTAIN GRASSLANDS
TROPICAL LOWLAND FOREST
SAVANNAH WITH GALLERY FOREST
THORN FOREST
PAPYRUS SWAMP
DESERT SHRUB
DRY WOODED PARK LANDS

FIGURE 1.—Vegetation map of northeastern Africa.

In a general way the Abyssinian highlands may be divided into two main zoogeographic areas—that extending from the Hawash north to Bogosland and west to the Blue Nile, and south to the west of the Rift Valley to southern Shoa (pl.5) and the Omo basin; and that to the south of the Hawash and to the east of the Rift Valley extending southeastward to the highlands of Arussi-Gallaland. The two regions have most of their species in common, but the northern area has a number of birds not found to the south of the Hawash. Thus, such birds as *Geronticus eremita*, *Bostrychia carunculata*, *Tylibyx melanocephala*, *Agapornis taranta*, *Lybius tsanae*, and *Pyrrhocorax pyrrhocorax* occur in the northern and not in the southern highlands.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ERITREA
FRENCH SOMALILAND
GULF OF ADEN
BRITISH SOMALILAND
ETHIOPIA
ITALIAN SOMALILAND
UGANDA
EQUATOR
EQUATOR
KENYA COLONY
VICTORIA NYANZA
TANGANYIKA TERRITORY
INDIAN OCEAN
1
2
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7
8
0 100 200 300 400 500 MILES
· SCALE ·

FIGURE 2.—Annual rainfall map of northeastern Africa.

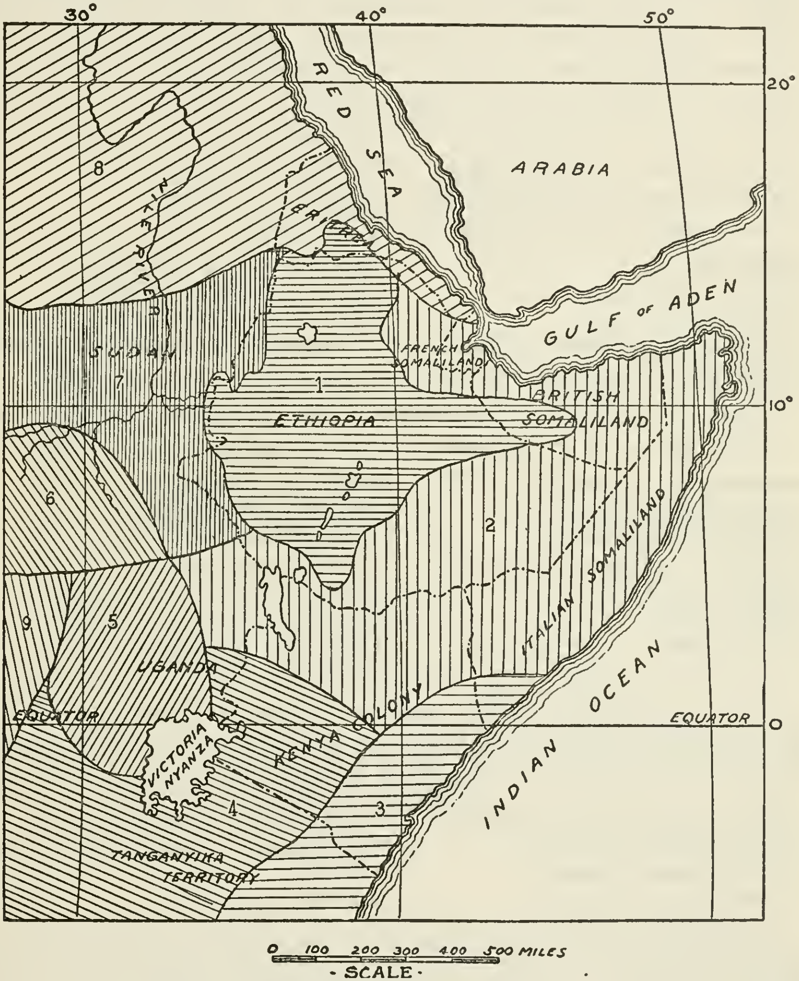
1. 0–10 inches.
2. 10–20 inches.
3. 20–30 inches.
4. 30–40 inches.
5. 40–50 inches.
6. 50–60 inches.
7. 60–70 inches.
8. 70–80 inches.

In the southern part of the northern highlands a large number of birds represented in the mountains of tropical Africa occur, making the avifauna there distinctive from that of northern Ethiopia, particularly in the forested areas. Even as far south as Shoa, however, the forest fauna is poor in many avian elements, common farther to the south. Thus, there are no pittas or broadbills. Among the bulbuls alone, so numerous in tropical Africa, we may note the absence of such genera as *Arizelocichla*, *Stelgidillas*, *Atimastillas*, *Bleda*, *Charitillas*, *Andropadus*, *Stelgidocichla*, and *Eurillas*. We may recall the absence of such typical mountain forest birds as *Heterotrogon*, *Illadopsis*, and *Alethe*, the lack of forest weavers of the subgenera *Symplectes* and *Phormoplectes*, of *Nigrita* and *Spermophaga;* of *Linurgus* among the finches; the paucity of caterpillar shrikes and of species of *Apalis*. (Pl. 9.)

Just as the northern and western highland area tends to become faunally different in different regions, so too we may note local changes in the southern and eastern Ethiopian highlands. Thus, the plateau and mountains of British Somaliland contain a number of birds not found in the Arussi-Galla highlands. As examples may be cited *Francolinus castaneicollis ogoensis*, *Columba olivae*, *Turdus ludoviciae*, *Oenanthe phillipsi*, *Pycnonotus somaliensis*, and *Rhynchostruthus socotranus louisae.* The last named is not so strictly a highland bird as the others, but it appears to occur at considerable elevations. Some birds characteristic of the Arussi-Galla highlands are *Francolinus castaneicollis bottegi*, *Cercomela scotocerca enigma*, *Cercomela dubia*, *Pinarochroa sordida erlangeri*, and *Cossypha semirufa donaldsoni.* In general, the Arussi-Galla highlands have relatively few endemic birds, as most of the forms found there also occur in Shoa and even farther west and north. The endemic forms range down to fairly low altitudes also.

One feature of the altitudinal distribution of bird life in Ethiopia that stands out clearly is that far more lowland birds range high up the mountain slopes, up to 7,000 or 8,000 feet, than extend up to 4,500 feet in more equatorial portions of the continent. Birds that reach their altitudinal limit at 4,000 feet in the mountains of Kenya Colony may occur as high as 7,000 feet in Arussi-Gallaland. The reason seems to be that in the Ethiopian highlands there is no dense band of tropical mountain forest encircling the higher mountains, and, consequently, there is no impassable ecological barrier to prevent the birds of the surrounding savannah lowlands from extending their ranges to relatively great heights. A direct consequence of this condition is the lack of any clear demarcation of life zones in the northeast African highlands. Thus, there are no bamboo zones or tropical rain forest belts, but merely rather indefinite zones characterized as follows (fig. 3):

1. An alpine-temperate zone, comparable to the paramo of Chapman's Andean terminology; a barren area above timber line and extending to the snow level where such exists. This zone may roughly be placed at from 10,000 feet up to the snow line, but it must be remembered that there are some places, as in Arussi-Gallaland, where juniper forests extend beyond 10,000 feet, and which would not be included in the alpine zone. This zone is local and is fragmented over the map, as it involves only isolated areas here and there. It exists chiefly in northern Ethiopia, where perhaps its most character-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VICTORIA NYANZA
TANGANYIKA TERRITORY
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FIGURE 3.—Faunal areas of northeastern Africa.

1. Abyssinian Highland.
2. Somali Arid.
3. East African Arid.
4. East African Highland.
5. Uganda-Unyoro.
6. Sudanese Savannah.
7. Ubangi Savannah.
8. Sudanese Arid.
9. Lower Guinea Forest.

istic birds are *Gypaetus barbatus meridionalis*, *Pinarochroa sordida* (several races), and *Pyrrhocorax pyrrhocorax*.

2. A subtropical to almost semitemperate zone, which may be divided into two—a temperate-forest zone and a plateau-savannah zone. The forest zone is very local and, on a map, resembles a rather narrow circuitous line. It coincides with the temperate rain forest on the vegetation map. It exists chiefly in the northern-western highlands and reappears in the Arussi country. The plateau savannah occurs on both sides of the Rift Valley but is much more extensive on the western side, whence it reaches to the Eritrean border on the north and nearly to the Sudanese boundary on the east.

Some birds characteristic of the temperate forest zone are:

Aquila verreauxi.
Eurystomus afer aethiopicus.
Poicephalus flavifrons.
Agapornis taranta (also in savannahs).
Pseudoalcippe abyssinicus abyssinicus.
Turdus olivaceus abyssinicus.
Geokichla litsipsirupa simensis.
Seicercus umbrovirens, 3 races in different parts of Ethiopia (umbrovirens, erythreae, and omoensis).

As already stated, the zonal forest birds are rather few in number.

Birds typical of the plateau savannahs include the following:

Bostrychia carunculata.
Cyanochen cyanopterus.
Francolinus castaneicollis.
Francolinus africanus, several races.
Rougetius rougetii.
Lybius undatus.
Lybius tsanae.
Dendropicos abyssinicus.
Macronyx flavicollis.
Dioptrornis chocolatinus.
Oenanthe lugubris.
Corvultur crassirostris.
Onycognathus morio rüppellii.
Ploceus baglafecht baglafecht.
Urobrachya axillaris traversii.
Spinus nigriceps.

In the eastern part of the eastern highland district the altitudes are generally lower and the mountain grasses are largely replaced by tall grass savannahs. Here another group of birds is added to many of the above-mentioned species. Among these are:

Turacus leucotis donaldsoni.
Gymnoschizorhis personata.
Corythaixoides leucogaster.
Trachyphonus erythrocephalus gallarum.
Galeopsar salvadorii.

These forms also extend down into the lowlands of the southern Somali Arid zone. In other words, the eastern border of the Arussi-Galla highlands presents a mixture of highland and lowland species.

Similarly in the southwestern portion of the Ethiopian highlands, in the Omo region, we find a strong mixture of west African birds together with typically Ethiopian ones. *Lamprocolius glaucovirens* and *Agapornis pullaria* may suffice to exemplify the western element present there.

In the southern part of the Ethiopian portion of the Rift Valley is a chain of lakes, which attract great numbers of water birds, thereby changing the local aspect of the avifauna. Also a noticeable Somali element extends into the valley from Boran and northern

Kenya Colony (pls. 13, 14), creating together with the highlands birds what is probably the richest fauna of any portion of Ethiopia.

There is no well-defined lower limit to the subtropical zone, as the lowland fauna (tropical-arid) extends well up the mountainsides. The Shoan lake region and the tall grass savannahs of the eastern Galla highlands might be termed almost tropical, but they are obviously mixtures in their avifauna and not true zonal areas.

Order PASSERIFORMES

Family ALAUDIDAE, Larks

MIRAFRA CANTILLANS MARGINATA Hawker

Mirafra marginata Hawker, Bull. Brit. Orn. Club, vol. 7, p. 55, 1898: Ugiagi, i. e., Ujawagi, Ethiopia.

Specimens collected:

- 3 adult females, 1 adult unsexed, Hawash River, Ethiopia, February 4–12, 1912.
- 1 immature male, Mount Jebring, southeast of Lake Stefanie, Kenya Colony, May 14, 1912.
- 1 immature male, Tertale, Ethiopia, June 8, 1912.
- 2 immature males, Turturo, Ethiopia, June 16, 1912.
- 1 adult male, south end Lake Rudolf, Kenya Colony, July 10, 1912.
- 3 adult, 2 immature, males, Indunumara Mountains, Kenya Colony, July 14–16, 1912.

This species of bush lark is distributed from India west through northeastern Africa to Asben in the French Sahara. In the Ethiopian region it breaks up into three races, as follows:

1. *M. c. simplex:* Western and southwestern Arabia.

2. *M. c. marginata:* The eastern Hawash Valley and eastern Gallaland south through Kenya Colony to the Serengeti Plains east of Mount Kilimanjaro and to Lake Magadi.

3. *M. c. chadensis:* The Kassala Province of the Anglo-Egyptian Sudan west through Kordofan and Darfur to Lake Chad and to Asben.

Of these three, the status of *marginata* is the least satisfactory. I am not at all convinced that it is different enough from the Arabian *simplex* to justify its recognition, but I have not sufficient material from Arabia to decide the point. On the whole, *marginata* has the pectoral streaks darker than *simplex*.

Zedlitz[7] has examined Hawker's type and finds it to be a young bird. This, then, may account for its generally brownish tone. The present specimens from the Hawash River are distinctly grayish birds, not at all like the illustration[8] of the type. They are all in worn plumage.

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[7] Journ. für Orn., 1916, p. 58.

[8] Ibis, 1899, p. 64, pl. 2, fig. 2.

Zedlitz considers *cheniana*, *cantillans*, and *albicauda* all conspecific, but this view can not be maintained. *M. cheniana* and its races have shorter, more bluntly conical bills than either *M. cantillans* or *M. albicauda.* The last two can not be anything but distinct species, as they occur together throughout the range of the latter. *M. candida* is a fourth species closely allied to these three. It is hard to understand how four species of the same subsection of a genus might evolve in the same general region, but we know so little of the habits of any of them that it is impossible even to begin to speculate.

Erlanger[9] found this lark very common in the steppes of the Danakil region and also in suitable places in southern Somaliland. It is more a bird of the bush country, less one of the open grasslands, than *M. fischeri.* Erlanger found the species breeding in May and June. Thus, on May 3, at Karo-Lola in the Garre-Lewin country, southern Gallaland, he found a nest containing four eggs, partly incubated. On June 20 he found a nest with two eggs at Filoa. He describes the eggs as being quite glossy and pale greenish white in ground color, speckled with olive and olive-brown flecks, chiefly around the large pole, and averaging 19 by 15 mm in size.

Inasmuch as larks have but one complete annual molt a year (the postnuptial one), the fact that the present series, collected in February, are all in worn plumage shows that they were certainly not long through breeding, and may not have even started.

The four birds from the Hawash River are so much grayer, less brown, above than the adults from Kenya Colony that at first I took them to represent another form, but I have seen similarly grayish birds from the Northern Guaso Nyiro River and from Lake Magadi, in the American Museum of Natural History, and am therefore forced to the conclusion that the difference, startling as it is, is wholly due to wear, the gray birds being much abraded, the brown ones freshly feathered.

In this connection it may be noted that van Someren[10] records birds from Lake Magadi as a possible undescribed race, differing from *marginata* in being generally darker, especially on the crown, and in having the dorsal marks less streaky. As mentioned above, I have seen a typical example of *marginata* from Lake Magadi, and may add that one of the adults from the Indunumara Mountains is so unusually dark above that it looks more like a specimen of *M. albicauda* than of *M. cantillans marginata.* It differs from the former, however, in having brownish edges to the feathers of the dorsum and in having the white on the outer rectrices more restricted, as in *marginata*. Zedlitz and others have commented on the great variability of the color characters of *marginata*.

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[9] Journ. für Orn., 1907, pp. 43–44.

[10] Nov. Zool., vol. 29, p. 178, 1922.

Young birds vary as well as adults. Thus, in the series of six immature specimens listed above, the crown feathers vary from black to dull rufous-brown, in both cases bordered terminally with tawny-buff; the upper back and back are predominantly grayish earth brown in one bird, tawny buffy brown in another; the pectoral streaks are very dark in some specimens and much paler in others.

Van Someren[10a] has recently recorded this lark from the Marsabit area where it was nesting in June and July. Other locality records given by him are Nyondo Crater, Chanlers Falls, Taveta, and Nakuru.

MIRAFRA PULPA Friedmann

Mirafra pulpa Friedmann, Occ. Papers Boston Soc. Nat. Hist., vol. 5, p. 257, 1930: Sagon River, Ethiopia.

Specimens collected: 1 male, Sagon River, Ethiopia, May 19, 1912.

This specimen is the type and only known example of this distinct species discovered by the Frick expedition. As mentioned in the original description, this lark appears to be most closely related to the South African *Mirafra passerina* Gyldenstolpe, from which it differs in being much darker in color, in having a shorter, more deeply curved claw on the hind toe, and in having a relatively stouter, heavier bill. The specimen is in worn plumage.

According to Mearns's notes, this bird has the habit of rattling its wings in flight like the flappet lark (*M. fischeri*). The single specimen obtained "sang sweetly from a bush" when first seen, and it was shot as it flew off.

It is of more than passing interest to find this bird, so similar to *M. passerina*, in southern Ethiopia, as not a few larks of South Africa find their nearest relatives in the northeastern part of the continent. The genera *Spizocorys*, *Heteromirafra*, and *Certhilauda*, for example, occur only in those two regions and not in the intervening thousands of miles.

MIRAFRA ALBICAUDA Reichenow

Mirafra albicauda Reichenow, Journ. für Orn., 1891, p. 223: Gonda, Tabora district, Tanganyika Territory.

Specimens collected:

1 male, Lake Abaya, SE., Ethiopia, March 21, 1912.
2 males, Lake Abaya, S., Ethiopia, March 22, 1912.
1 male, Black Lake Abaya, Ethiopia, March 24, 1912.
1 male, Athi Station, Uganda Railway, Kenya Colony, September 1, 1912.

The East African white-tailed bush lark does not appear to have been previously recorded from Ethiopia although known from the

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[10a] Nov. Zool., vol. 37, p. 336, 1932.

Upper White Nile and the Kassala districts of the Sudan. It is barely possible that the Shoan birds may form a distinct race, as they are more brownish, less ashy gray on the upper back than a small series from southern Kenya Colony. However, the difference is slight and the series small, so the matter can not be decided at present. All in all, I have examined only seven birds. There is considerable individual variation in the white on the outer rectrices. Some specimens have the two outermost pairs entirely white and the outer web of the third pair also white, while others have only the outermost pair wholly white, the second white with a fuscous-brown smear on the inner web, the third without any white. This agrees with the observations of Ogilvie-Grant[11] that in Sudanese specimens "the amount of white in the outer tail-feathers varies. * * * in some examples, as in the type, the *two* outer pairs are mostly white; in others only the outer pairs are white and the fifth pair have the outer web mostly white, while in the fourth it is only margined with white."

The size variations of this bird are not unusual in range. The present five males have the following dimensions: Wing, 77–84 (average, 80.3); tail, 43.5–48.5 (average, 45.5); culmen, 12.5–14 (average, 13.2); tarsus, 22–23 (average, 22.5 mm).

This lark occurs from the Tabora, Unyamwesi, and Unyamyembe districts of Tanganyika Territory north through the Sotik and Ukamba districts of Kenya Colony to southern Shoa and to the Sudan (Upper White Nile and Kassala areas) west to the Shari-Chad region. I have not learned of any records, however, from the area between Thika, Kenya Colony, and the Sudan and southern Shoa, but the absence of records is perhaps due to the ease with which larks are apt to be overlooked by collectors. It probably occurs in suitable localities all through the intervening country. It appears to be a bird of lowland plains and would therefore be absent from the highlands of western and west-central Kenya Colony, and from the papyrus areas and forests of Uganda. However, its altitudinal range may be greater than we know. Van Someren[12] records a bird from Nakuru as "*Mirafra* sp., near *albicauda*", but, as the specimen was badly damaged by the shot and in the absence of comparative material, he refrains from definitely identifying it as *albicauda*. Thika is 4,500 feet above the sea; Nakuru is 6,070 feet.

But little is known of the habits of this lark. In the Sudan Butler[13] never saw it away from regions of black cotton-soil. He found that in its general habits it was quite similar to *Mirafra*

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[11] Ibis, 1902, pp. 409–410.

[12] Ibis, 1916, p. 434.

[13] Ibis, 1905, p. 309.

cantillans and makes a purring or drumming noise with its wings when in flight, like that produced by the flappet lark (*M. fischeri*). A specimen shot at Gedaref on May 18 was in breeding condition. Van Someren found this bird breeding in May and July on the Kapiti Plains.[14]

MIRAFRA CANDIDA Friedmann

Mirafra candida Friedmann, Auk, vol. 47, p. 418, 1930: Northern Guaso Nyiro River, Kenya Colony.

Specimens collected: 1 adult male, 1 immature male, 1 immature female, Northern Guaso Nyiro River, Kenya Colony, August 2–3, 1912.

The adult is the type of this species.

This richly colored lark is closely allied to *Mirafra cantillans marginata*, but inasmuch as the two occur and appear to breed in the same places, the present form must be considered specifically distinct from the latter. The color of the dorsal surface of the adult *candida* is a deep, somewhat brownish-purple shade of rufous, and is not earth brown and grayish black like *marginata*. The present species has no grayish or true blackish marks on it, the dark centers of the crown feathers being fuscous-brown, those of the black feathers deep chocolate-brown with lighter borders.

The young birds resemble the corresponding plumage stage of *M. cantillans marginata*, but are much more rufescent on the wings, nape, and upper back.

Nothing is known of the habits of this lark. The adult is molting the remiges, a sure sign that it was past the breeding season when it was collected.

M. candida is known so far only from the type locality.

Lest it be thought that this species or *M. pulpa* is really the same as *M. meruensis* Sjöstedt,[15] it may be said that the description of the latter form (considered by Sclater a synonym of *schillingsi*) does not fit either *pulpa* or *candida*.

MIRAFRA HYPERMETRA GALLARUM Hartert

Mirafra hypermetra gallarum Hartert, Bull. Brit. Orn. Club, vol. 19, p. 84, 1907: Bouta, Hawash Valley.

Specimens collected:

1 male, Gada Bourca, Ethiopia, December 24, 1911.
4 males, Iron Bridge, Hawash River, Ethiopia, February 4–6, 1912.
2 males, Hawash River, Ethiopia, February 8, 1912.

This, the largest of all the species of its genus, is found in eastern Africa from the Hawash Valley and Shoa in Ethiopia, south to the

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[14] Nov. Zool., vol. 37, p. 336, 1932.

[15] Wissenschaftliche Ergebnisse der schwedischen zoologischen Expedition nach dem Kilimandjaro . . . Deutsch-Ostafrika, 1905–6, etc., vol. 3, Vögel, p. 137, 1910.

Moroto district of northeastern Uganda, and through Kenya Colony (north and east of the highlands) to northeastern Tanganyika Territory (to the Pangani River, Usaramo, and Sigerari). It has been differentiated into two races, as follows:

1. *M. h. hypermetra:* Northern Tanganyika Territory north through Kenya Colony to southern Somaliland, the semiarid savannahs north of the Northern Guaso Nyiro River (exactly how far north not yet known), and to the Moroto country of Uganda (probably Turkanaland also).
2. *M. h. gallarum:* Ethiopia (Hawash Valley and Shoa). This race differs from the typical one in being much grayer, less brownish and less rufous above (especially on the crown and interscapulars), and in having the lesser upper primary coverts more rufous, less grayish, than in *hypermetra.* I have seen but one specimen of the latter race and the present seven of *gallarum*, but they illustrate the subspecific differences very well. The *hypermetra* examined has smaller black pectoral spots than any of the *gallarum*, but this may be purely an individual matter.

The seven birds collected by the Frick expedition are all in fairly worn plumage. One of them (the bird taken at Gada Bourca on December 24) is slightly browner above than the others, but not nearly so brown as *hypermetra.* The dimensions of the series are as given in table 1.

Table 1.—*Measurements of seven specimens (all males) of* Mirafra hypermetra gallarum *from Ethiopia*

Locality	Wing	Tail	Culmen	Tarsus
	Mm	*Mm*	*Mm*	*Mm*
Gada Bourca	114.0	89.0	19.0	29.0
Iron Bridge	111.0	83.5	18.5	30.5
Do	115.5	85.0	20.0	31.0
Do	112.0	82.0	19.5	32.5
Do	118.0	89.5	----------	31.5
Hawash River	113.0	85.0	20.0	32.0
Do	114.0	83.0	20.5	33.0

Erlanger[16] found this lark to inhabit grassy plains thinly dotted with trees and shrubs, but definitely records it as absent in the grassy steppes of Arussi-Gallaland, a fact that, in keeping with what is known of the distribution of the nominate form, indicates that *gallarum* is also a bird of relatively low altitudes. Erlanger first encountered it in the Danakil region north of the Hawash Valley and found it to be very common there. As far as I have been able to learn, it is usually considered uncommon in most parts of its range, although Lovat found it to be numerous, but wary, in the Hawash region. Mearns noted in his diary that this lark was seen in the bushy and grassy plains from near Bilan to the high plain above Gada Bourca.

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[16] Journ. für Orn., 1907, pp. 46–47.

Erlanger found a nest on June 22 near Umfudu, southern Somaliland. It contained one egg. He also obtained juvenal birds at the same locality on the same date.

Recently van Someren [16a] has intimated that the nominate form has a dark, a gray, and a rufous phase. If this be substantiated by further material, it may tend to upset the characters of *gallarum*.

MIRAFRA AFRICANA ATHI Hartert

Mirafra africana athi Hartert, Nov. Zool., vol. 7, p. 46, 1900: Athi Plains, Kenya Colony.

Specimens collected: 1 adult male, Athi River Station, Uganda Railway, Kenya Colony, September 1, 1912.

The rufous-naped lark does not occur in the northern half of Kenya Colony or in Ethiopia, where its place is taken by *M. hypermetra*, and consequently it was not until the very last days of the expedition that Mearns found this bird. Only one specimen was procured, but several others were seen at the Athi River, and a few (of another race, *dohertyi*) were noted at Escarpment, September 4–12.

A good deal of material has been published on the races of this lark, and I have not sufficient series to enable me to contribute much. The one point I wish to make is that *harterti* may possibly be a synonym of *athi*, and that *athi* may be inclined to be dichromatic.

Sclater [17] lists *harterti* as a doubtful form. Van Someren,[18] on the other hand, suggests that it is a distinct species. He says:

> If *harterti* is a form of *africana*, which I very much doubt, how is it that we get the very palest race next to the most rufous? It may be suggested that the character of the soil, etc., is the determining factor; but this rufous bird is not found only on red soil, nor yet the pale *athi* on "black cotton" soil. So far I have no proof of the presence of the two forms in the same locality, except in South-west Ukamba.

Hartert [19] records a specimen of *tropicalis* from Koboko River, Ukamba. Is this a specimen of *harterti* also? Lönnberg [20] records a "rufous phase of *athi* from Punda Melia near Fort Hall. It appears, therefore, that reddish birds occur sporadically throughout Kenya Colony, and it may be that they are nothing but a color phase. It is not surprising to find a species as geographically variable as this lark producing erythrisms.

[16a] Nov. Zool., vol. 37, p. 335, 1932.

[17] Systema avium Æthiopicarum, pt. 2, p. 312, 1930.

[18] Nov. Zool., vol. 29, pp. 175–176, 1922.

[19] Bull. Brit. Orn. Club, vol. 19, p. 93, 1907.

[20] Kongl. Svenska Vet.-Akad. Handl., vol. 47, no. 5, p. 113, 1911.

Recently, however, van Someren[21] has reaffirmed the specific distinctness of *harterti* in both adult and young plumages. I have seen no material and so can not decide this point.

The breeding season is in April and May; the birds molt in July and August. The present specimen is in fine fresh plumage.

MIRAFRA FISCHERI FISCHERI (Reichenow)

Megalophoneus fischeri Reichenow, Journ. für Orn., 1878, p. 266: Rabai, near Mombasa.

Specimens collected:

1 male, Tharaka district, Kenya Colony, August 14, 1912.
2 males, Tana River, Kenya Colony, August 18, 1912.
1 female, Tana River at mouth of Thika River, Kenya Colony, August 23, 1912.

The geographic races of the flappet lark are very puzzling because of the fact that apparently melanistic forms occur in several areas, and in many places two color phases are found together. The racial characters are slight at best and require series for their illustration. I have not enough material to decide on the validity of some of them and merely follow Sclater's conclusions[22] in this paper. Only two subspecies occur in the areas collected in by the Frick expedition. They are as follows:

1. *M. f. fischeri:* Kenya Colony from Mombasa (and also the coastal districts of Tanganyika Territory) to southern Somaliland, and to northeastern Uganda and the Upper White Nile district of the Sudan.

2. *M. f. degeni:* Central and southern Ethiopia. This form is very slightly larger than *fischeri* but blacker on the interscapular region and redder on the sides of the breast. The material I have examined is not sufficient to prove definitely that this race can not be distinguished from the typical one, but it certainly suggests it. Sclater claims that *omoensis* is a synonym of *degeni.* One bird from Lake Stefanie (which I assume may be *omoensis*) is equally well matched by examples of *fischeri* and of *degeni.*

The present four birds are remarkably uniform in coloration for so variable a species. The female, however, is noticeably paler below than any of the three males.

Van Someren[23] found this lark to be plentiful in the scrub and grass country in southern Kenya Colony. He says:

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[21] Nov. Zool., vol. 37, p. 335, 1932.
[22] Systema avium Æthiopicarum, pt. 2, pp. 313–314, 1930.
[23] Ibis, 1916, p. 433.

They were nesting in June, the nest being constructed in a shallow depression under a tuft of grass. Very little nesting material is used.

The eggs, three to four in number, are a dirty-buff ground-colour, speckled with dark brown, the surface semi-glossy.

Besides the specimens collected, Mearns observed 20 of these larks at the junction of the Tana and Thika Rivers, August 23–26; and along the Thika River for 30 miles or more, August 26–29, he noted 20 more. Finally, on the Athi River, August 30, he saw a single specimen.

MIRAFRA FISCHERI DEGENI Ogilvie-Grant

Mirafra degeni Ogilvie-Grant, Bull. Brit. Orn. Club, vol. 13, p. 28, 1902: Hiressa, Ethiopia.

Specimens collected:

1 adult male, 1 adult female, Lake Abaya, SE., Ethiopia, March 21, 1912.
1 adult male, 1 immature female, Bodessa, Ethiopia, May 23–25, 1912.
1 adult male, east Lake Stefanie, Ethiopia, May 9, 1912.

Soft parts: Iris pale brown; bill brownish black above, below flesh-color at base shading to pale plumbeous terminally; feet and claws brownish flesh-color. (Sexes alike.)

The young bird is in an advanced stage of the postjuvenal molt and is quite similar to the adults but has heavier and larger pectoral spots than do older birds. As already mentioned, if the birds of exterme southern Shoa are true *degeni*, the race is only doubtfully distinct from *fischeri*. The blackness of the interscapulars is not well shown by the present series and is found in the blackish phase of *fischeri* and of *kavirondensis*. Similarly I can not find much support for *degeni* in its dimensional characters. I append the measurements (males only) of both forms here as the evidence for this statement:

1. *M. f. fischeri:* Wing, 73.5, 76, 79; tail, 53.5, 53.5, 56.5; culmen, 13.5, 14, 14.5; tarsus, 23, 24, 24.5 mm.
2. *M. f. degeni:* Wing, 78, 78, 81.5; tail, 53, 55, 55; culmen, 13.5, 14, 14.5; tarsus, 24, 24, 24.5 mm.

The present specimens agree quite well with the colored figure in Ogilvie-Grant's paper.[24]

Mearns observed this bird on many occasions during his travels through southern Shoa. I find the following entries in his notebooks: Abaya Lakes, March 18–26, 170 birds seen; Bodessa, May 19–June 3, 500; Sagon River, June 3–6, 35 noted; Tertale, June 7–12, 300; El Ade, June 12–13, 25 birds; Mar Mora, June 14–15, 100; Turturo, June 15–17, 100; Biderou, June 15, 100; Anole, June 17, 50 birds; Wobok, June 18, 20 seen; Saru, June 19, 50 noted; Yebo, June 20, 20; Karsa Barecha, June 21, 50; Malata, June 22, 20 birds; Chaffa villages, June 23–25, 40 seen.

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[24] Ibis, 1904, pl. 5, facing p. 261.

MIRAFRA AFRICANOIDES INTERCEDENS Reichenow

Mirafra intercedens Reichenow, Orn. Monatsb., vol. 3, p. 96, 1895: Loeru, Kondoa-Irangi distr., Tanganyika Territory.

Specimens collected:

1 unsexed, Hawash River, Ethiopia, February 7, 1912.
2 adult males, 3 adult females, Bodessa, Ethiopia, May 21–30, 1912.
1 adult male, Tertale, Ethiopia, June 10, 1912.
1 unsexed, Endoto Mountains, Kenya Colony, July 20, 1912.
2 adult males, Northern Guaso Nyiro River, Kenya Colony, August 3, 1912.
1 adult male, Lekiundu River, Kenya Colony, August 7, 1912.

Soft parts: Iris brown; bill brownish black, flesh-color at base on sides and below; graying on middle of mandible; feet and claws flesh-color.

The present series, supplemented by a number of other specimens, reveals such diversity in color that I feel that Kenyan examples of "*M. alopex*" and *M. a. intercedens* may be one and the same thing. Not only do there seem to be two phases, a rufous one and a grayish-brown one, but freshly plumaged birds are noticeably more rufescent than abraded ones. The majority of recent authors have attempted to separate these phases and call the rufous ones *alopex* and the less rufous, more grayish birds *intercedens*, but their action is largely arbitrary. The name *alopex* has five years' priority over *intercedens* and is the name to be used if the two are really identical. The reason I have retained the latter for the present is that in spite of the numerous records of *alopex* in literature from various Kenyan localities, Sclater[25] writes that it is apparently confined to British Somaliland. I interpret this as meaning that he considers the rufescent birds of Kenya Colony the same as *intercedens* and that they are different from topotypical *alopex*. Not having seen any material from British Somaliland, I can not decide the point, and use Reichenow's name for the present birds.

The tendency to produce rufous individuals is a fairly common one among larks of the genus *Mirafra*. Thus, we find *M. fischeri* frequently producing extremely reddish birds (called *torrida* by some authors, but not really worth naming); *M. cantillans marginata* is likewise somewhat dichromatic; and in *M. africana* the so-called form *harterti* seems to be merely a rufous phase of *athi*.

Van Someren[26] writes that the reddish "*alopex*" (which he considers specifically distinct from *intercedens*) occurs below 3,000 feet, while *intercedens* lives between 3,000 and 5,000 feet. He also notes that in northeastern Uganda, the country around the south end of Lake Rudolf, and the Suk Hills, a paler, "desert" form is found. I may say that the birds from the Endoto Mountains, the Northern

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[25] Systema avium Æthiopicarum, pt. 2, p. 315, 1930.
[26] Nov. Zool., vol. 29, pp. 177–178, 1922.

Guaso Nyiro River, and the Lekiundu River, are rather paler than the rest, but the difference is slight, and, in so variable a form, not sufficient to warrant subspecific splitting.

An argument against the validity of Kenyan "*alopex*" is the fact that rufous birds have been taken practically throughout the range of *intercedens*. If the reddish phase were geographically restricted, it would have more significance. The dark, blackish race *longonotensis* is a valid form, but even there a tendency toward dichromatism exists.

A good argument in favor of the Kenyan "*alopex*" being a distinct species is advanced by van Someren,[27] who states that they "are certainly not *intercedens*. Their song or call note is totally different." This seems to be another case where life-history studies are needed to clear up the systematics of the birds.

The size variations of the present series are as follows: Males—wing, 86.5–92; tail, 52.5–56; culmen, 13–15.5; tarsus, 21.5–24 mm. Females—wing, 78.5–84; tail, 50–51; culmen, 11; tarsus, 20–22 mm.

The bird taken on February 7 on the Hawash River is in worn plumage; the rest of the specimens are freshly feathered.

This lark is a denizen of the semiarid grasslands, thinly dotted with thornbushes and trees.

MIRAFRA POECILOSTERNA POECILOSTERNA (Reichenow)

FIGURE 4

Alauda poecilosterna REICHENOW, Orn. Centralb., 1879, p. 155: Kibaradja, Tana River, Kenya Colony.

SPECIMENS COLLECTED:

1 male, near Saru, Ethiopia, June 19, 1912.
1 immature male, Nyero Mountains, Kenya Colony, July 13, 1912.
2 males (1 adult, 1 immature), Indunumara Mountains, Kenya Colony, July 14–17, 1912.
1 adult male, 1 immature female, camp near Endoto Mountains, Kenya Colony, July 19, 1912.
1 male, Endoto Mountains, Kenya Colony, July 20, 1912.
1 male, 1 female, Le-se-dun, Kenya Colony, July 26, 1912.
1 male, 1 female, Malele, Kenya Colony, July 27, 1912.
1 male, 2 females, 18 miles south of Malele, Kenya Colony, July 27–28, 1912.
1 male, river 24 miles south of Malele, Kenya Colony, July 29, 1912.
1 immature male, 35 miles north of the Northern Guaso Nyiro River, Kenya Colony, July 30, 1912.
1 male, Northern Guaso Nyiro River, 10 miles east of Archers Camp, Kenya Colony, July 31, 1912.
1 male, 1 female, Northern Guaso Nyiro River, Kenya Colony, August 1–2, 1912.

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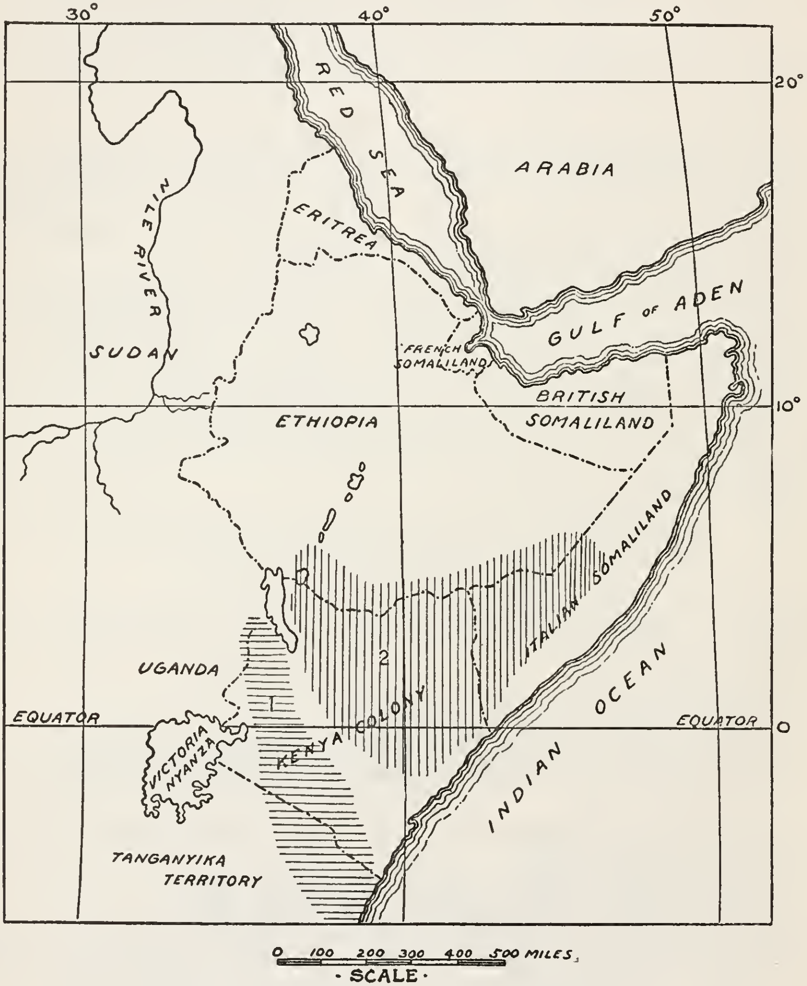
[27] Nov. Zool., vol. 37, p. 335, 1932.

This lark is found in eastern Africa from northern Tanganyika Territory through Kenya Colony to eastern Uganda, southern Shoa, southern Gallaland, and Italian Somaliland. Throughout its range, it divides into two races, the typical one being the more northern of the two.


30°
40°
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RED SEA
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NILE RIVER
ERITREA
SUDAN
FRENCH SOMALILAND
GULF OF ADEN
BRITISH SOMALILAND
ETHIOPIA
ITALIAN SOMALILAND
UGANDA
2
1
EQUATOR
EQUATOR
KENYA COLONY
OCEAN
VICTORIA NYANZA
INDIAN
TANGANYIKA TERRITORY
0 100 200 300 400 500 MILES
· SCALE ·

FIGURE 4.—Distribution of *Mirafra poecilosterna.*

1. M. p. massaica.
2. M. p. poecilosterna.

1. *M. p. poecilosterna:* Southern Shoa, Gallaland, and Italian Somaliland south in the arid districts of northern Kenya Colony to the Tana River.

2. *M. p. massaica:* From the Pangani River and the Kilimanjaro region of Tanganyika Territory north through the Ukamba and Kikuyu regions of Kenya Colony, north to the west of the Rift

Valley to the Moroto district of northeastern Uganda. This race is darker above and below than *poecilosterna*. This difference in color cannot be interpreted as correlated in any way with environmental differences in humidity, as the dark *massaica* lives in the Taru desert, which is certainly as arid as the scrubby wilderness of Tanaland where the paler *poecilosterna* is found.

The young birds, quite different from the adults, have the upperparts much more mottled and spotted, lack the gray on the crown, and have the feathers dark fuscous-brown medially, laterally broadly edged with rufous-tawny, and tipped with paler tawny. Among themselves they show great variation, some birds being generally pale yellowish tawny, while others are chiefly dark brownish.

Zedlitz[28] has briefly described the immature plumage of this lark but writes that the underparts are as in the adults, except for the fact that there are round black specks on the throat and that the rufous-brown cheeks are bordered by a line of indistinct blackish dots. In the birds examined the blackish-brown spots are present on the upper breast and lower throat but not on the auriculars except in one case. Zedlitz writes, however, that the young of *poecilosterna* bear a great general resemblance to the adults of *fischeri*, a statement with which I cannot agree, as the latter is so very much darker, more rufous above and below, and so obviously barred above as to be distinguished at a glance.

The size variations of the pink-breasted singing lark are considerable, as may be seen from the measurements given in table 2.

TABLE 2.—*Measurements of 19 specimens of* Mirafra poecilosterna poecilosterna

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
ETHIOPIA: Near Saru	Male	89.0	66.0	15.0	22.0
KENYA COLONY:					
Nyero Mountains	do	88.0	71.0	14.0	23.0
Indunumara Mountains	do	91.0	68.0	14.5	24.0
Do	do	90.0	67.0	13.0	24.5
Near Endoto Mountains	do	91.0	64.0	14.5	24.0
Endoto Mountains	do	86.0	65.0	14.5	23.5
Le-se-dun	do	91.0	66.0	----------	24.0
Malele	do	95.0	69.0	14.5	23.5
18 miles south of Malele	do	92.0	69.0	15.0	25.0
24 miles south of Malele	do	86.5	62.0	13.0	23.0
35 miles north of Northern Guaso Nyiro River.	do	91.0	71.0	15.0	24.0
Northern Guaso Nyiro River	do	88.0	71.0	14.0	23.0
Do	do	98.0	73.0	14.5	24.0
Endoto Mountains	Female	83.5	62.0	13.0	23.0
Le-se-dun	do	92.5	68.0	14.0	22.5
Malele	do	89.0	67.0	15.0	23.5
18 miles south of Malele	do	85.0	58.0	14.0	23.5
Do	do	93.5	73.0	15.5	24.0
Northern Guaso Nyiro River	do	85.0	59.5	15.5	24.0

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[28] Journ. für Orn., 1916, pp. 55–56.

ALAEMON ALAUDIPES DESERTORUM (Stanley)

Alauda desertorum STANLEY, *in* Salt's Voyage en Abyssinie, Appendix, p. lx, 1814: Amphila Island, Red Sea (see p. xlix).

SPECIMENS COLLECTED: 3 males, 1 female, Djibouti, French Somaliland, November 22, 1911.

The hoopoe lark has been divided into four races, all of which seem to be valid (*A. alaudipes omdurmanensis* being a synonym of *meridionalis*). In the regions traversed by the Frick expedition only one race occurs, the pale, sandy form of the desert country bordering the Red Sea. This subspecies appears to be restricted to the low, maritime plain from Suez south along both sides of the Red Sea to as far as Aden, Arabia, and Djibouti, in French Somaliland. Zedlitz does not mention this lark in his account of the avifauna of southern Somaliland. In the regions where it occurs it is a common bird. Thus, Pease found it to be plentiful in the vicinity of Zeila and Aroharlaise, northern Somaliland, and Percival,[29] working in southern Arabia, met with it in "the low deserts near the sea, commonest along the coast to the west of Shaik Othman and eastwards towards Dar Mansur. None were seen beyond the belt of Mimosa trees to the south of Lahej, and only one or two were met with in the Abian Country."

The present specimens are in somewhat worn plumage. The males are much larger than the female, as the measurements given in table 3 show.

TABLE 3.—*Measurements of four specimens of* Alaemon alaudipes desertorum *from Djibouti, French Somaliland*

Sex	Wing	Tail	Culmen	Tarsus
	Mm	*Mm*	*Mm*	*Mm*
Male	125	----------	32.0	36.0
Do	125	91.5	30.5	34.0
Do	123	86.0	33.0	34.5
Female	114	84.5	29.0	33.0

Another female from Aden, Arabia, is even smaller than the present one.

In coloration, the most variable feature is the distinctness (size and intensity) of the pectoral spots. All are distinctly spotted on the breast (much more so than in typical *alaudipes* from lower Egypt), but in one bird the spots are less veiled, more blackish, than in the others. Blanford [30] noted similar variation in his series.

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[29] *In* Ogilvie-Grant, Nov. Zool., vol. 7, p. 247, 1900.

[30] Observations on the geology and zoology of Abyssinia, made during the progress of the British expedition to that country in 1867, pp. 386–387, 1870.

GALERIDA CRISTATA SOMALIENSIS Reichenow

Galerida cristata somaliensis Reichenow, Journ. für Orn., 1907, p. 49: Zeila, Somaliland.

Specimens collected:

9 adult males, 5 immature males, 7 adult females, 5 immature females, Hor, Kenya Colony, June 26–28, 1912.
2 adult males, 1 immature male, 1 immature female, 18 miles southwest of Hor, Kenya Colony, July 1–2, 1912.
10 adult males, 6 immature males, 7 adult females, 2 immature females, Dussia, Kenya Colony, July 3–4, 1912.
1 adult male, 1 immature male, 1 immature female, Lake Rudolf, east and south end, Kenya Colony, July 5–11, 1912.

Soft parts: Sexes alike; iris brown; bill grayish olive; feet and claws pale gray.

The geographic variations of the crested lark have been studied by a number of workers, all of whom had access to material representing a larger number of races than were accessible to me. Hartert, Bianchi, Zedlitz, Meinertzhagen, Lynes, and others have contributed to this subject, and as my total comparative material comprises only three Ethiopian races, I can do no better than to follow the arrangement given by Sclater.[31]

According to this authority, the Somali crested lark occurs from the maritime plain of British Somaliland from Berbera to Zeila and inland to the Lake Rudolf region. Van Someren[32] records it from as far west as Kobua River, west of Lake Rudolf, the westernmost locality known to me. (Van Someren had previously[33] identified these birds as *eritreae* Zedlitz. However, this is now said to be a synonym of *altirostris*, but the Kobua River birds certainly can not be considered as of this Dongola race.)

G. c. somaliensis is characterized by its short, stout bill and generally pale coloration (not so pale as *isabellina*, however). Van Someren writes that his birds from Kobua River have wings 102 to 105 mm in length. The present series are smaller, as may be seen from the measurements of the adults collected given in table 4.

All the adults (36) are in molt, the remiges and rectrices being noticeably affected, but I doubt whether the wing lengths are thereby rendered smaller than otherwise in the majority of cases. The molt is, however, obviously the annual, complete one, i. e., the postnuptial one. This indicates that the breeding season must have ended some time in May, an implication that is corroborated by the fact that the juvenal birds are all in fresh plumage. The latter differ from the adults in having the forehead and crown transversely barred, not streaked longitudinally, in having the upper back likewise barred, but less regularly than on the head, in having the remiges and their upper coverts broadly edged with whitish (purer white, less buffy than in adults), and in having the dark pectoral spots smaller.

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[31] Systema avium Æthiopicarum, pt. 2, pp. 325–326, 1930.
[32] Nov. Zool., vol. 29, p. 179, 1922.
[33] Journ. East Africa and Uganda Nat. Hist. Soc., no. 16, p. 13, Feb., 1921.

Van Someren[34] found young in nestling plumage in July.

TABLE 4.—*Measurements of 36 adult specimens of* Galerida cristata somaliensis *from Kenya Colony*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Hor	Male	98.5	54.0	16.5	25.0
Do	do	93.0	51.0	15.0	25.0
Do	do	102.0	52.5	16.0	24.0
Do	do	101.0	53.0	17.0	25.5
Do	do	90.0	54.5	17.5	24.5
Do	do	101.0	53.5	17.5	25.5
Do	do	92.0	52.5	17.0	24.0
Do	do	97.0	53.0	16.5	23.0
Do	do	99.0	55.5	16.5	25.5
18 miles southwest of Hor	do	101.5	55.0	16.5	25.0
Do	do	98.0	55.0	15.5	23.0
Dussia	do	97.0	52.0	15.0	26.0
Do	do	99.5	53.0	16.5	25.0
Do	do	99.0	53.0	17.0	24.0
Do	do	100.0	55.5	16.0	25.5
Do	do	104.0	57.5	16.0	26.0
Do	do	100.0	56.0	17.0	25.0
Do	do	98.0	51.0	18.0	25.0
Do	do	98.0	54.5	17.0	25.5
Do	do	95.5	47.0	16.5	23.5
Do	do	96.5	51.5	17.0	24.5
Lake Rudolf	do	98.5	53.0	17.5	----------
Hor	Female	93.0	55.0	16.5	25.0
Do	do	92.0	45.0	17.0	24.5
Do	do	94.0	51.0	15.5	24.0
Do	do	94.0	51.0	16.0	24.0
Do	do	90.0	54.0	16.0	24.0
Do	do	95.5	54.0	16.0	24.0
Do	do	91.0	49.0	15.5	23.5
Dussia	do	94.0	54.5	15.5	24.5
Do	do	96.0	51.5	----------	25.0
Do	do	93.5	--------	16.0	24.5
Do	do	95.0	51.5	16.0	25.0
Do	do	98.0	55.0	15.5	23.0
Do	do	94.0	50.0	16.0	25.5
Do	do	101.5	59.0	17.0	24.5

GALERIDA THEKLAE PRAETERMISSA (Blanford)

Alauda praetermissa BLANFORD, Ann. Mag. Nat. Hist., ser. 4, vol. 4, p. 330, 1869: Senafe–Tigré, 8,000 feet.

SPECIMENS COLLECTED:

1 unsexed, Gada Bourca, Ethiopia, December 26, 1911.

3 adult males, 1 immature male, 1 adult female, Adis Abeba, Ethiopia, December 31, 1911–January 13, 1912.

1 adult female, Hakaki, Ethiopia, January 14, 1912.

2 adult males, 2 adult females, Arussi Plateau, Ethiopia, February 15–28, 1912.

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[34] Nov. Zool., vol. 37, p. 333, 1932.

Two subspecies of the theckla lark occur in northeastern Africa—the present one, found in the higher country of Ethiopia from the Eritrean escarpment south to Shoa and the Arussi Plateau, and a paler, more sandy-colored race (*ellioti*) of the interior of British Somaliland, and of northern Kenya Colony (Koroli and Marsabit!).

The first pennaceous plumage of this lark does not appear to have been recorded, so the following description may be of value: Generally similar to that of the adult, but the top of the head not streaked, the feathers dark fuscous-brown terminally narrowly edged with white or buffy white, giving an effect of fine light crossbars on the crown and occiput; feathers of the nape much paler and laterally margined with sandy tawny; the interscapulars dark fuscous-brown tipped with whitish, and only narrowly laterally margined with tawny (in adults the lateral edges are wider than the median dark areas); the upper wing coverts and the inner secondaries edged with white (tawny in adults).

The adults vary considerably; some are more rufous on the nape and interscapulars, while others are more sandy tawny. The birds from the Arussi Plateau are blacker on the back and on the head than are the specimens from Gada Bourca, Adis Abeba, and Hakaki, and may represent an undescribed form. From the material available, the Arussi birds seem clearly separable from the others, which agree with Blanford's figure[35] of *praetermissa*, but I do not care to take any action because of the very dark bird Blanford[36] obtained far to the north at Ashangi, in the country inhabited by *praetermissa*, and named by him "*A.* (*G.*) *arenicola?* Tristram, var. *fusca*." This specimen may mean that *praetermissa* is very variable individually, or it may mean that the dark Arussi form occasionally occurs as far north as the country 200 miles to the east of Lake Tsana. Under the circumstances, the best thing to do is merely to record the differences and not attempt to involve the nomenclature.

Aside from color, the birds vary in size. Here there is no correlation between variation and geography, as may be seen from the measurements given in table 5 of the adults collected by the Frick expedition.

Erlanger[37] collected a series at Adis Abeba in July and found them to be molting and deduced therefrom that the breeding season had been over for some time. The gonads of the adults were small. The present birds, taken in January and February, are not in very fresh plumage and may or may not have been breeding. Unfortunately, Mearns failed to note the condition of the gonads, but the young bird taken on January 12 must have left the nest not later

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[35] Observations on the geology and zoology of Abyssinia, etc., pl. 6, facing p. 388, 1870.

[36] Ibid., p. 387.

[37] Journ. für Orn., 1907, p. 48.

TABLE 5.—*Measurements of 10 specimens of* Galerida theklae praetermissa *from Ethiopia*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Gada Bourca		100.5	53.0	15.0	25.5
Adis Abeba	Male	106.5	55.5	14.0	27.0
Do	do	94.5	53.0	15.0	23.0
Do	do	98.5	56.0	15.0	24.0
Arussi Plateau	do	104.5	55.0	15.5	25.0
Do	do	101.0	56.5	15.5	23.5
Adis Abeba	Female	94.0	54.0	15.0	26.0
Hakaki	do	93.0	50.0	15.0	24.0
Arussi Plateau	do	95.0	52.0	15.5	25.0
Do	do	110.0	58.0	14.5	26.0

than the middle of December. Zedlitz,[38] collecting at Asmara, found these larks in full song in February and early in March and collected young as early as May 19.

On the Arussi Plateau, Mearns found this lark up to as high as 11,500 feet above the sea. Zedlitz writes that this bird is a mountain species and does not occur even on the lower slopes. He found it between altitudes of from 2,300 meters (7,550 feet) to 3,500 meters (11,500 feet).

Van Someren [39] records *ellioti* from Koroli and Marsabit, in northern Kenya Colony, and writes that he suspects the north Kenyan birds will have to be considered as a new form, as they are "darker above than *ellioti*, but not so dark below as *praetermissa*, nor so large."

EREMOPTERYX LEUCOTIS LEUCOTIS (Stanley)

FIGURE 5

Loxia leucotis STANLEY, *in* Salt's Travels in Abyssinia, Appendix, p. lx, 1814: Abyssinia.

SPECIMENS COLLECTED:

1 adult male, Mar Mora, Ethiopia, June 14, 1912.
1 adult male, 1 adult female, Chaffa, upper village, Ethiopia, June 24, 1912.
1 adult male, Dussia, Kenya Colony, July 3, 1912.

The chestnut-backed finch lark is the most widely distributed species of its genus, ranging from Senegal, Nubia, Eritrea, and Ethiopia south through the drier parts of eastern Africa to the Transvaal, Bechuanaland, and Damaraland. As far as the material available for study goes, the conclusions reached by Sclater [40] are substantiated, but the statements of ranges given by him are not wholly correct:

1. *E. l. leucotis:* To the range as given by Sclater should be added southern Eritrea and Bogosland.

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[38] Journ. für Orn., 1911, pp. 51–52.
[39] Nov. Zool., vol. 37, p. 333, 1932.
[40] Systema avium Æthiopicarum, pt. 2, p. 329, 1930.

2. *E. l. melanocephala:* Correct as given by Sclater.

3. *E. l. madaraszi:* Sclater writes that this form inhabits Kenya Colony (coastal region and Loita Plains), merging with typical *leucotis* in Gallaland. This form is known to occur south through Tanganyika Territory to the region north of Lake Nyasa, and north to the northeastern part of Uganda (Mount Kamalinga, Moroto), to Obbia, in Italian Somaliland, and to southern Gallaland. Hartert[41] records it from the last-named region.

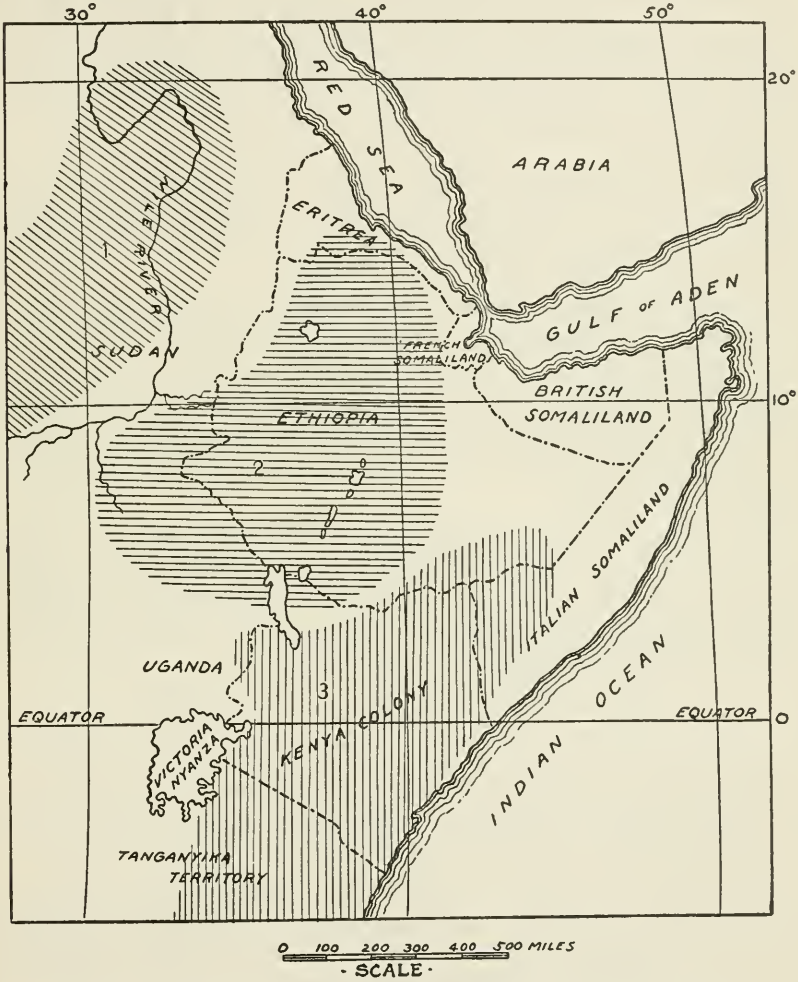
30°
40°
50°
20°
10°
0
RED SEA
ARABIA
ERITREA
NILE RIVER
1
SUDAN
FRENCH SOMALILAND
GULF OF ADEN
BRITISH SOMALILAND
ETHIOPIA
2
ITALIAN SOMALILAND
UGANDA
3
KENYA COLONY
INDIAN OCEAN
EQUATOR
EQUATOR
VICTORIA NYANZA
TANGANYIKA TERRITORY
0 100 200 300 400 500 MILES
· SCALE ·

FIGURE 5.—Distribution of *Eremopteryx leucotis* in northeastern Africa.

1. *E. l. melanocephala.*
2. *E. l. leucotis.*
3. *E. l. madaraszi.*

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[41] Nov. Zool., vol. 28, p. 131, 1921.

4. *E. l. smithi:* Damaraland, Bechuanaland, and the Transvaal, north to the Zambesi Valley, to the north of which it intergrades with *madaraszi.*

The present specimens are in worn plumage and may well have been in breeding condition when collected. The race inhabiting the Nile Valley (*melanocephala*) has been found nesting in January, March, and May, and as all larks have but one annual molt, which comes after the end of the nesting season, it seems not improbable that the birds of southern Shoa and the adjacent part of Kenya Colony breed in June and July.

The three males are uniformly similar in color and in size. Their measurements are: Wing, 76, 78, 78.5; tail, 41, 41.5, 42; culmen, 11, 11, 11; tarsus, 15.5, 16, 16.5 mm, while those of the female are: Wing, 76.5; tail, 39.5; culmen, 11.5; tarsus, 16.5 mm.

Von Heuglin found this finch lark numerous in the highlands between Tigre and Simien, up to 8,000 feet. On the other hand, Erlanger obtained it at sea level at Kismayu on the coast, so that the altitudinal range of the species is considerable. The Kismayu records refer to *madaraszi* and not to typical *leucotis.* In general, however, the nominate form is more of a highland bird than either *melanocephala* or *madaraszi.*

Besides the specimens collected, Mearns noted this bird in large numbers every day during his journey from Chaffa to the Endoto Mountains, June 23 to July 20. From 20 to 500 birds were seen daily. It may be that the more southern of these records refer to *madaraszi*, but no specimens were taken south of Dussia.

EREMOPTERYX NIGRICEPS MELANAUCHEN (Cabanis)

Coraphites melanauchen Cabanis, Museum Heineanum, vol. 1, p. 124, 1851: No locality; Dahlak Island, Red Sea, *apud* Heuglin.

Specimens collected: 3 adult males, 1 adult female, 1 immature female, Djibouti, French Somaliland, November 23, 1911.

Owing to lack of comparative material, I follow Sclater [42] in referring these birds to *melanauchen* and in restricting the range of the race to the African side of the Red Sea. I have seen no birds from the Yemen Province of Arabia and can not say whether *sincipitalis* is valid.

If the ranges of the subspecies as given by Sclater are correct, it would appear that typical *nigriceps* of the Cape Verde Islands might be one species and *albifrons*, *melanauchen*, and *sincipitalis* another, as the two groups are widely separated and *nigriceps* has no dark subnuchal band and has the white on the forehead much wider than in any of the others. If the species were thus divided into two specific entities, the forms would be as follows:

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[42] Systema avium Æthiopicarum, pt. 2, pp. 329–330, 1930.

1. *E. nigriceps:* Cape Verde Islands.
2. *E. albifrons albifrons:* Darfur and Kordofan to the Nile Valley.
3. *E. a. melanauchen:* Jubaland, Somaliland, Gallaland, Eritrea, Socotra, and the Red Sea Province of the Sudan.
4. *E. a. sincipitalis:* Aden Protectorate, southwestern Arabia.

The three adult males vary considerably with regard to the light band across the nape. In one specimen this band is much wider than in the other two and is conterminous with the white auriculars. In the other two the white auriculars are completely surrounded by fuscous-black.

The immature female resembles the adult but has the throat slightly more buffy.

The measurements of the series are as follows: Males—wing, 74, 78, 79.5; tail, 47, 48, 50.5; culmen, 10.5, 11, 11; tarsus, 15.5, 16.5, 17 mm. Female—wing, 71.5; tail, 42; culmen, 11; tarsus, 17 mm.

The birds are all in fairly worn plumage. According to Pease,[43] the breeding season in the vicinity of Zeila, Somaliland, is in March. He collected a juvenal bird on April 3 and an immature one in November.

EREMOPTERYX SIGNATA (Oustalet)

Pyrrhulauda signata OUSTALET, Bibl. École Hautes Études, vol. 31, art. 10, p. 6, 1886: Somaliland.

SPECIMENS COLLECTED:

1 adult male, 1 adult female, Sadi Malka, Ethiopia, February 3, 1912.
2 adult females, Hawash River, Ethiopia, February 8, 1912.
1 immature male, Malata, Ethiopia, June 22, 1912.
3 adult males, 1 immature male, 1 immature female, Chaffa, upper village, Ethiopia, June 24–25, 1912.
7 adult males, 5 adult females, Hor, Kenya Colony, June 26–28, 1912.
3 adult males, 1 immature male, 1 adult female, 18 miles southwest of Hor, Kenya Colony, July 1–2, 1912.
4 adult males, 3 immature males, 6 adult females, 2 immature females, Dussia, Kenya Colony, July 3–4, 1912.
3 immature males, east shore Lake Rudolf, July 5, 1912.
1 adult female, south end Lake Rudolf, July 8, 1912.
1 unsexed (= male), north end Lake Rudolf, May 23, 1912.

The chestnut-headed finch lark is a member of the Somali avifauna and ranges from British Somaliland through the eastern parts of the Hawash Valley, west to Sadi Malka, south through Somaliland and Gallaland to extreme southern Shoa and Lake Rudolf and to Kenya Colony, south as far as the Lorian Swamp and the Lekiundu River to the northern foothills of Mount Kenya. Along the coast it does not seem to have been recorded from south of Kismayu.

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[43] Quoted by Ogilvie-Grant and Reid, Ibis, 1901, p. 630.

The present series of 47 specimens illustrates the plumages of this finch lark and reveals some hitherto unrecorded facts. The plumage stages may be briefly outlined at this point.

The juvenal plumage is alike in both sexes but averages paler in the males, darker in the females. The feathers of the forehead, crown, and occiput are tawny-brownish subterminally banded with dark sepia, giving the head a dark appearance; lores and superciliaries pure cinnamon-buff; a narrow band across the nape also cinnamon-buff; scapulars, interscapulars, back, rump, and upper tail coverts varying from tawny-olive to Saccardo's umber, tipped with pale buffy, the tips being very narrow on the interscapulars and upper back; central pair of rectrices fuscous-brown broadly edged all around with buffy white; the outermost pair pale ashy brownish gray with a pale fuscous smudge on the inner web; the rest of the tail feathers dark fuscous narrowly tipped with whitish; upper wing coverts Saccardo's umber, broadly edged with buffy white; remiges fuscous-brown, narrowly margined with pale buff; underparts whitish, the breast, sides, and flanks heavily marked and washed with dull tawny-brown; under wing coverts blackish gray.

This plumage is worn for about a year and is then replaced by a complete molt which brings on the subadult plumage. This differs from the preceding plumage in that it is more uniformly tawny-brown above and lacks the scalloped appearance characteristic of the upperparts of juvenal birds, and has the breast and sides more definitely streaked with dull brownish gray. This plumage appears to be worn for about a year, when it is replaced by the adult plumage. This molt is also a complete one, and is unusual in that it appears to begin with the feathers of the upper abdomen (a region that is usually among the last to be affected by ecdysis). The molt then spreads to the nape, occiput, and middle of the throat and then to the under tail coverts. The new remiges and rectrices do not begin to appear until the body molt is practically completed. The new wing quills are much darker than those of the juvenal plumage, so that it is easy to tell them apart even in a skin.

Adult males vary considerably in coloration. The white crown patch is only one and a half times as long as the eye in one bird, while in another it is more than three times as long. The dark nuchal band just posterior to the white one is wholly lacking in one specimen, is deep black in another, and reddish brown like the top of the head in most individuals. The brown of the head, chin, and throat varies from liver brown, dark bay, and auburn to dark blackish brown. In some birds the chin and throat are lighter and brighter than the forehead and crown, while in others the opposite is true.

E. s. harrisoni is considered a synonym. It has been stated that birds from the west of Lake Rudolf differ from specimens from the south end of the lake and from Northern Guaso Nyiro River in having the chestnut of the throat separated from the black of the abdomen by a broad white band, but this character appears to be inconstant. Birds of both types were collected near Hor. It may be that east of Lake Rudolf the two forms meet and blend and that the variation in the present series is so explained.

The size variations of this species are not particularly extensive, but inasmuch as this lark is scarce in collections I am giving the measurements in table 6 of all the adult and subadult birds (not immature ones).

Table 6.—*Measurements of 35 adult and subadult specimens of* Eremopteryx signata

Locality	Sex	Wing	Tail	Culmen	Tarsus
Ethiopia:		*Mm*	*Mm*	*Mm*	*Mm*
Sadi Malka	Female	80.0	45.0	11.5	17.5
Hawash River	do	74.0	39.5	11.0	16.5
Do	do	79.0	45.0	11.0	15.5
Kenya Colony:					
Hor	do	73.5	41.0	11.5	18.0
Do	do	76.0	41.5	12.0	17.0
Do	do	70.0	42.0	11.5	16.5
Do	do	73.0	38.5	11.5	17.5
Do	do	75.0	--------	12.5	16.5
18 miles southwest of Hor	do	66.5	42.0	11.5	17.0
Dussia	do	77.0	45.5	12.0	16.5
Do	do	75.5	45.0	11.0	17.0
Do	do	76.4	44.5	11.0	16.5
Do	do	74.0	40.0	11.0	16.5
Do	do	72.0	41.5	11.5	17.5
Do	do	76.0	43.5	11.5	18.0
South end of Lake Rudolf	do	73.5	38.5	11.5	18.0
Ethiopia:					
Sadi Malka	Male	76.5	44.0	11.0	--------
Chaffa	do	76.0	43.0	11.0	17.0
Do	do	79.5	43.0	11.0	18.5
Do	do	72.0	41.0	12.0	17.0
Kenya Colony:					
Hor	do	74.0	40.0	12.0	17.0
Do	do	77.0	42.0	12.0	16.5
Do	do	76.0	43.5	11.5	16.5
Do	do	75.0	41.0	11.5	17.0
Do	do	74.5	45.5	12.5	18.0
Do	do	75.0	42.5	11.0	16.0
Do	do	76.0	41.0	11.0	17.0
18 miles southwest of Hor	do	80.5	43.5	11.5	18.0
Do	do	76.5	42.0	12.0	16.0
Do	do	75.5	42.0	11.0	18.5
Dussia	do	79.0	45.0	11.5	18.0
Do	do	77.5	--------	11.0	17.5
Do	do	79.0	44.0	11.0	16.5
Do	do	77.0	43.0	12.0	17.0
North end of Lake Rudolf		77.0	44.0	12.0	18.0

Zedlitz[44] considers this bird as only subspecifically distinct from *Eremopteryx verticalis* of South Africa. There can be no question that the two are more closely related to each other than to any members of the genus, and the tendency for males of *signata* to replace the chocolate-brown by blackish on the head and throat suggests a close phylogenetic relationship between them. It seems more natural, however, to consider them as species, inasmuch as the two groups are easily identified at a glance and are separated geographically by thousands of miles.

Van Someren has recently[44a] recorded paler specimens from West Rudolf and darker ones from Marsabit and the Northern Guaso Nyiro.

TEPHROCORYS CINEREA ERLANGERI Neumann

Tephrocorys cinerea erlangeri NEUMANN, Journ. für Orn., 1906, p. 239: Sheikh Mahamed on the Webi River.

SPECIMENS COLLECTED:

- 7 adult males, 5 adult females, Adis Abeba, Ethiopia, December 31, 1911–January 13, 1912.
- 1 adult female, near Ankober, Ethiopia, January 21, 1912.
- 1 adult female, Arussi Plateau, Ethiopia, February 14, 1912.

The use of the name *erlangeri* for these birds is not necessarily to be taken to mean that I recognize two races—*ruficeps* and *erlangeri*—in Ethiopia, but merely that the former name can not be used. *Alauda ruficeps* was described by Rüppell in 1840[45] and is therefore preoccupied by *Alauda arvensis ruficeps* Bechstein, 1795.[46]

Neumann's name is the next oldest that has been applied to the Abyssinian red-capped larks and must therefore be used in place of *ruficeps* Rüppell. Sherborn does not list Bechstein's name in his "Index Animalium," but Hartert[47] lists it as a synonym of *Alauda arvensis arvensis* with the comment that while Bechstein's name has been considered a synonym of *Melanocorypha sibirica*, it appears more probable that the bird Bechstein had before him was an *Alauda arvensis*. However, this is beside the point; both Bechstein and Rüppell described their birds as in the genus *Alauda*.

I have seen several birds from the Simien–Gojam district and find them to be definitely darker above and below than more southern birds. The northern birds I have named *fuertesi*.[48]

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[44] Journ. für Orn., 1916, p. 64.

[44a] Nov. Zool., vol. 37, p. 332, 1932.

[45] Neue Wirbelthiere, zu der Fauna von Abyssinien gehörig, Vögel, p. 102, pl. 38, fig. 1: Entschetzab, Simien Province.

[46] Gemeinnützige Naturgeschichte Deutschlands nach allen drey Reichen, vol. 4, p. 120.

[47] Die Vögel der paläarktischen Fauna, 1905, p. 244.

[48] Proc. Biol. Soc. Washington, vol. 45, p. 163, 1932.

Sclater considers *anderssoni* as distinct from *cinerea*, but in this I can not agree, as the material studied shows these two forms to be identical (i. e., if the range given for *anderssoni* by Sclater is correct, for I have seen no topotypical material). Roberts[49] writes that "whether *anderssoni* will stand or not remains to be seen, but I may state that there are five specimens in the Transvaal Museum from Damaraland * * * which I cannot separate from typical *cinerea*." Roberts recognizes *spleniata* as a distinct species, although most authors have considered it a synonym of *cinerea*. I have not seen any material of this form, but can not repress a suspicion that *spleniata* may be a good form with an even wider range than Roberts gives it. I have seen some small pale birds from the southern Kavirondo and Sotik districts of southwestern Kenya Colony that seemed more like the description of *spleniata* than like that of *cinerea* (or *saturatior*). This has led to an idle wonder whether *blanfordi* might not be closer to *spleniata* than to *cinerea*, but in the absence of material no conclusions are possible.

Sclater also recognizes *saturatior* as a valid form. I consider it the same as the typical race. I have examined birds from South Africa, Tanganyika Territory, Kenya Colony, and Uganda and can not see any constant geographic variations. Neumann[50] questioned the validity of *saturatior*. Granvik[51] notes that "it seems * * * as if Neumann's doubt as to the genuineness of this form is well-founded. For among the 7 adults lying before me, there are two which have the outer web of the outermost rectrices white, the others have a more or less greyish white or greyish brown outer-web. Besides, all of them have a broader or narrower white edge to the 2nd rectrix." Gyldenstolpe[52] recognizes *saturatior* but admits that "an examination of a large material collected at different times of the year will perhaps show, that no tangible differences exist between these two forms (*cinerea* and *saturatior*) and that * * * *saturatior* was only based on seasonal variation. There are no differences with regard to size between South African specimens and those from East and Central Africa." Van Someren,[53] on the other hand, thinks *saturatior* should be recognized and says "it is generally darker than typical *cinerea*, the rufous patches on the side of the chest and the crown darker. In Uganda is found an even *darker bird*, which cannot be placed under any named race."

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[49] Ann. Transvaal Mus., vol. 11, p. 224, 1926.

[50] Journ. für Orn., 1906, p. 239.

[51] Journ. für Orn., 1923, Sonderheft, p. 204.

[52] Kongl. Svenska Vet.-Akad. Handl., 1924, p. 77.

[53] Nov. Zool., vol. 29, pp. 178–179, 1922.

Leaving the question of *spleniata* and *blanfordi* out of consideration (they are not races of *cinerea* anyway), I recognize three forms of the red-capped lark, as follows:

1. *T. c. cinerea:* South Africa north to Angola, the Katanga, eastern Belgian Congo, southern Uganda, and southwestern Kenya Colony (Kikuyu country to Eldoret and Kavirondo). This race has the sides of the breast bright rufous and has the forehead bright rufous as well as the crown.

2. *T. c. erlangeri:* South-central Ethiopia, south to the Hawash Valley and to Gallaland. Differs from *cinerea* in having the forehead tinged with blackish, in being much blacker on the back, and in having a prominent black patch on the sides of the breast (surrounded by a rufous wash). Shelley[54] states that the Abyssinian red-capped lark inhabits Somaliland as well as Ethiopia, but the only "Somali" record he gives is that of two specimens taken by Donaldson Smith at Sheikh Mahamed. However, this locality is not in Somaliland, but in the Ginir country of Ethiopia, latitude 7°30′ N., longitude 40°40′ E. (approximately). Lovat's birds also came from Ethiopia, not Somaliland (Jeffi Dunsa and Balti).

3. *T. c. fuertesi:* Northern Ethiopia, the Simien–Tigré district.

The present series exhibits but little variation either in size or in color. Females are smaller than males. One bird from Adis Abeba sexed by the collector as a female is the largest specimen of the whole series, and is very probably a male. Exclusive of this one, the measurements are as follows: Males—wing, 86–93 (average, 91); tail, 55–63 (average, 57.9); culmen, 11–12 (average, 11.5); tarsus, 19–21 (average, 20.3 mm). Females—wing, 84.5–89 (average, 86.2); tail, 50–57 (average, 53); culmen, 11–12 (average, 11.6); tarsus, 20–22 (average, 21 mm).

Erlanger[55] collected some of these birds at Adis Abeba in July, September, and October, but found none in breeding condition. It is all the more unfortunate, therefore, that Mearns failed to note the condition of the gonads in his specimens.

Family HIRUNDINIDAE, Swallows

HIRUNDO RUSTICA RUSTICA Linnaeus

Hirundo rustica Linnaeus, Syst. Nat., ed. 10, vol. 1, p. 191, 1758: Europe; restricted type locality, Sweden.

Specimens collected:

1 male, Loco, Ethiopia, March 15, 1912.
1 female, Gato River near Gardula, Ethiopia, April 2, 1912.

Both specimens are in fairly fresh plumage, but the female was so badly damaged by the shot that it hardly looks it at first sight.

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[54] The birds of Africa, etc., vol. 3, p. 127, 1902.

[55] Journ. für Orn., 1907, p. 49.

Besides these two, the species was noted as follows: Hawash River, January 26–February 23, not very numerous but noted everywhere; Aletta, March 7–13, 50 seen; Loco, March 13–15, 50 birds; Gidabo River, March 15–17, 50; Abaya Lakes, March 18–26, 250 seen; between Abaya Lakes and Gardula, March 26–29, 10 birds; Gato River near Gardula, March 29–May 17, 500 noted; Lekiundu River, August 4–8, 22 seen; Meru, August 10, 50 birds; 20 miles east of Meru on the trail to the Tana River, August 11, 50 seen; Tharaka district, August 12, 200 birds; Tana River, August 23, 1 seen.

It will be noted from the above dates that the last migrants to leave in the spring were noted between the end of March and the middle of May. Unfortunately, no exact dates are given in Mearns's diary for the last birds seen. The first southbound migrants were met with at the Lekiundu River, August 4–8. In his account of the migration of this swallow in East Africa, Meinertzhagen[56] writes that birds—

> * * * commence arriving in Abyssinia from early September and large flocks were seen crossing the Red Sea just north of Port Sudan on 2.x. A few winter in Abyssinia. Both adults and birds of the year arrive in Somaliland towards the end of September. * * *
>
> In tropical eastern Africa my first autumn record is on 30.ix., and they became numerous by 3.x.

Judged by Mearns's observations of these birds in north-central Kenya Colony early in August (unfortunately not supported by specimens), it appears that the dates given by Meinertzhagen are slightly inaccurate.

Von Heuglin[57] records *Hirundo rustica* as a summer bird along the Red Sea and states that the autumn migration along that coast and in the Nile Valley takes place between August and September. Koenig[58] states that the summer birds are nonbreeding "left-overs" and are not normal birds.

Heuglin's birds may be *transitiva.*

This swallow appears to migrate to a large extent down the Nile Valley, from which it then wanders to the east and west. Thus, Lynes[59] writes that in Darfur it is a common migrant from east to west, September 12 to November 8. None winters there.

Grote[60] states that in Ethiopia the migrants begin to arrive in September, but that relatively few remain there for the winter. His account of the African wanderings of this swallow is very detailed and should be referred to by all interested in this matter.

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[56] Ibis, 1922, pp. 30–32.

[57] Ornithologie Nordost-Afrika's, der Nilquellen- und Küstengebiete des Rothen Meeres und des Nördlichen Somal-Landes, vol. 1, p. 151, 1869.

[58] Journ. für Orn., 1919, pp. 456–458.

[59] Ibis, 1925, p. 127.

[60] Mitteil. Zool. Mus. Berlin, vol. 16, pp. 49–51, 1930.

HIRUNDO LUCIDA ROTHSCHILDI Neumann

Hirundo rothschildi NEUMANN, Orn. Monatsb., vol. 12, p. 143, 1904: Schubba, west Kaffa, Ethiopia.

SPECIMENS COLLECTED: 3 males, 1 female, Hakaki River, Ethiopia, January 14, 1912.

I refer these specimens to *rothschildi* with a certain degree of mental reservation as to the validity of this race. Hartert[61] writes that "this form requires confirmation. The rufous colour on the forehead and throat is, in my opinion, not different from that of some *lucida*, collected by Ansorge at Cachen and Gunnal in Portuguese Guinea, and the more purple colour of the upperside appears to be the only difference." I have seen one Senegambian *lucida* and find it difficult to place much confidence in *rothschildi*, but prefer not to reject the latter without seeing more abundant material. Assuming, then, that this race may hold, we should use the following arrangement:

1. *H. l. lucida:* Senegal and Gambia to Portuguese Guinea.
2. *H. l. subalaris:* Central and eastern portions of the Belgian Congo. This race differs from the typical form in that it has the under wing coverts pale grayish brown, not white as in *lucida*, and has the sides of the body heavily tinged with grayish brown; the outermost rectrices are said to be longer and the bill larger than in *lucida*, but three specimens of *subalaris* examined do not show this. Sclater[62] considers *subalaris* a synonym of *lucida*, but I find it to be quite distinct.
3. *H. l. rothschildi:* Known from central and southwestern Ethiopia (Adis Abeba, Hakaki River, and Schubba).

Gyldenstolpe[63] considers *angolensis* a race of *lucida*. In this he is mistaken as far as the evidence available indicates. The two forms are very clearly defined and no intermediates are known, so while it is true that the two have some characters in common, the gap between them is sufficient to separate them specifically. Furthermore, since *subalaris* and *angolensis* appear to be geographically coincident in the eastern Congo, the two groups can not be considered conspecific.

Hirundo lucida remained unrecorded from northeastern Africa until Erlanger[64] collected an adult female and two young males at Adis Abeba in August and September, 1900. Neumann[65] procured one at Schubba in April of the following year, and the bird was not met with again until Mearns collected the present four birds.

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[61] Nov. Zool., vol. 29, p. 377, 1922.

[62] Systema avium Æthiopicarum, pt. 2, p. 575, 1930.

[63] Kongl. Svenska Vet.-Akad. Handl., 1924, p. 226.

[64] Journ. für Orn., 1905, p. 676.

[65] Ibid., p. 200.

The female is molting into adult plumage and reveals certain features of the immature feathering. The top of the head is dark, dull fuscous-brown with a few new, glossy, bluish-black feathers appearing on the occiput. The old (immature) remiges and rectrices are fuscous, the latter with white marks just as in adult birds; the under tail coverts are white with small, subterminal brown spots, while these feathers are pure white in the adults.

Because of the rarity of this bird in collections, I give the measurements of the present series:

Males—wings, 120–124 (121.3); tail, 58–63 (60.6); culmen, 7.5–8.5 (8 mm.). Female—wing, 114; tail, 51; culmen, 7 mm.

HIRUNDO AETHIOPICA Blanford

Hirundo aethiopica Blanford, Ann. Mag. Nat. Hist., ser. 4, vol. 4, p. 329, 1869: Barakit, North Ethiopia.

Specimens collected: 1 female, Lekiundu River, Kenya Colony, August 7, 1912.

The single specimen procured by the Frick expedition is an immature bird molting into adult plumage.

This swallow is one of the relatively few birds of the Upper Guinean savannahs that occur east through the Sudan to Ethiopia and Eritrea, and south through Kenya Colony to the northern half of Tanganyika Territory, without invading even the northern and eastern parts of Uganda. At least, I have been unable to find any definite records for it in Uganda.

According to Sharpe and Wyatt,[66] on information derived from von Heuglin, Blanford, Jesse, and others, this swallow occurs up to 10,000 feet above the sea in Ethiopia, and is less common on the coastal plains of the Red Sea than in the high plateau of the interior. In Bogosland it is migratory to some extent, although accurate data are not available. Antinori states that in that region it arrives in May and leaves in August, but it has been said to remain until December. Its relative scarcity in Ethiopian collections is difficult to account for on the basis of migration. Mearns was in Ethiopia for a long enough period to have met with it, and so was Neumann, to mention but one other collector who failed to find it.

Zedlitz[67] procured a specimen at 8,000 feet at Asmara, and apparently unaware of Heuglin's comments on the altitudinal range of this species, expresses considerable surprise at finding it so high up in the mountains.

Von Heuglin writes that the breeding season is from July to October. However, as the female obtained by Zedlitz at Asmara on May 15 was in full breeding condition, it appears that the season is longer than was previously thought.

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[66] A monograph of the Hirundinidae or family of swallows, p. 308, 1885.

[67] Journ. für Orn., 1910, p. 786.

Lynes[68] found it to be a summer visitor (breeding) in Darfur and Kordofan, although farther to the east, at Khartoum, and the valley of the White Nile generally, it appears to be a resident all the year round.

HIRUNDO SMITHII SMITHII Leach

Hirundo smithii LEACH, *in* Tuckey, Expedition to explore the river Zaire, etc., Appendix 4, p. 407, 1818: Chisalla Island, lower Congo.

SPECIMENS COLLECTED: 1 male, Tana River at mouth of Thika River, Kenya Colony, August 23, 1912.

The present species contains two races—the typical one, found in northwest, northeast, east, and southwest Africa, and the slightly larger form with longer attenuated outer rectrices, *filifera*, of India. The two forms, while recognizable, are not very well marked, as they overlap in size, but as average differences the characters stand out.

The present specimen is an adult in fine, fresh plumage.

Several investigators have considered the variations of the African wire-tailed swallow from a geographic standpoint, but the net result of the discussions of Neumann,[69] of Erlanger,[70] and of Zedlitz[71] seems to be that while the metallic sheen is more violaceous in birds from northeastern Africa and from Angola, and more bluish in specimens from southern Ethiopia, Somaliland, Kenya Colony, etc., to the Zambesi, yet it is so variable in any one locality that it is not of taxonomic significance. Likewise, the color of the rufous crown patch has been said by various authors[72] to vary geographically, but this seems to be a matter of wear, new feathers being darker than old abraded ones.

Throughout its range, this bird seems to be rather local, although by no means uncommon. Brehm noted it along the Red Sea coasts; von Heuglin found it in Ethiopia at altitudes of from 2,500 to 6,000 feet. In Uganda it is relatively uncommon, while farther to the east it is one of the most numerous of the swallows.

Von Heuglin assumed that the birds were breeding in Ethiopia from September to January, although he actually found nests with eggs only in September. He did find a nest with half-fledged nestlings in November, and, judging by the fact that the males continued singing until January, concluded that the species was more than single-brooded. This is borne out by Erlanger's discovery of two nests with eggs on April 22 and another on May 16 near Wante in the Garre-Lewin country.

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[68] Ibis, 1925, pp. 127–128.

[69] Journ. für Orn., 1905, p. 201.

[70] Ibid., p. 676.

[71] Journ. für Orn., 1910, p. 787.

[72] For example, van Someren, Nov. Zool., vol. 29, p. 91, 1922.

In Kenya Colony nests have been found in June, August, October, and December.

HIRUNDO RUFULA MELANOCRISSA (Rüppell)

Ceropsis melanocrissus Rüppell, Systematische Uebersicht der Vögel Nordost-Afrika's, p. 17, pl. 5, 1845: Temben, Ethiopia.

SPECIMENS COLLECTED:

1 male, 1 female, Adis Abeba, Ethiopia, January 13, 1912.
1 male, 2 females, Hakaki River, Ethiopia, January 15, 1912.

The two birds collected at Adis Abeba were a mated pair, according to Mearns's notes. They are lighter, more whitish, less rufescent on the breast and belly than the other three and have the dusky shaft streaks better developed than the Hakaki specimens. In fact, of the latter three, one has no indication of these streaks, one has them very faintly indicated, and the other somewhat more so.

A perusal of the literature is apt to mislead one into thinking that this bird and *H. r. emini* must be considered specifically distinct, as Erlanger [73] records the latter as breeding north to the Hakaki River. If his identification be correct, the fact that Mearns collected *melanocrissa* on that river would lead one to feel a necessity for keeping them as species. Sclater [74] states the range of *emini* to be Uganda and Kenya Colony, west to the eastern Congo and south to Nyasaland, and says nothing about its occurrence in Ethiopia. However, it occurs in the southern part of Shoa and in the Omo region, and possibly extends farther north in the lower country of eastern Ethiopia. In response to an inquiry of mine about the distribution of *melanocrissa* and *emini* in Ethiopia (on which basis rests their specific or subspecific status), Professor Neumann has kindly written me as follows (under date of October 5, 1929):

> * * * in spite of the occurrence of both very near to each other in southern Ethiopia (Omo region) I can not but consider them races. As to *H. domicella*, it does not occur in Abyssinia. The specimen, collected by Schimper in Tigre, no. 1689 of the Stuttgart Museum, recorded by v. Heuglin as *H. domicella* is a female of *H. daurica nipalensis*, which is probably a (rare ? ?) winter visitor to Abyssinia.

It follows, then, that *emini* is only racially distinct from *melanocrissa* as Sclater has correctly called it.

Hartert [75] has suggested that several African Hirundos such as *senegalensis* and *cucullata* might be looked upon as representative forms of *daurica*, but certainly no student of African birds would agree that *senegalensis* and *melanocrissa* were only racially distinct. The truth of the matter is that specific characters in swallows are generally finer and smaller than in many other birds, and there is nothing to be gained by attempting to reduce species to races merely to conform with other groups.

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[73] Journ. für Orn., 1905, pp. 678–679.
[74] Systema avium Æthiopicarum, pt. 2, p. 578, 1930.
[75] Die Vögel der paläarktischen Fauna, p. 807, 1910.

A study of the characters by which *melanocrissa* differs from *emini* supports the disposition of these two made above. The former is said to be noticeably lighter below and has dusky shaft streaks on the feathers of the throat, breast, and upper abdomen. As already noted, however, the shaft streaks are not always present in *melanocrissa*, and I have seen some dark-bellied *emini* with faint dusky shaft streaks. Van Someren[76] writes that a female *emini* from Kenya Colony has the throat and breast streaked, so apparently the birds I have seen are not unusual.

The only difference that appears to be constant is the color of the underparts. Neumann[77] records that the color of the upperparts is steel blue in *emini* and purplish blue in *melanocrissa*. This does not hold true in the series I have examined (20 birds in all), and Gyldenstolpe likewise was unable to corroborate Neumann's observation.

The range of *melanocrissa* is as follows: Northern and central Ethiopia. As far as I know there are no definite records from Eritrea, but Brehm observed a swallow that he considered to be *melanocrissa* at Mensa, Bogosland. Von Heuglin, however, cast doubt on this identification and suggested that the species observed might have been *Hirundo senegalensis*. Besides the numerous records from Ethiopia, I have seen one bird from Juja Farm, Athi River, Kenya Colony, that is typical *melanocrissa*. This is not only the southernmost record for the species and the first one for Kenya Colony, but is probably to be interpreted as an accidental one, i. e., the species is certainly not usually found so far south. This bird was collected by Mearns while he was with the Smithsonian African expedition under Colonel Roosevelt, on May 13, 1909.

Typical *rufula* occurs in the Egyptian Sudan, Eritrea, and the Yemen Province of Arabia, and *domicella* is found in the southern Anglo-Egyptian Sudan (Mongalla, White Nile, Bahr el Ghazal, etc.) west through Darfur to the savannahs of Upper Guinea. The range of *emini* will be dealt with under that form.

The published notes on the ecological habitat and habits of this swallow are not sufficiently harmonious to enable us to get a very clear picture. Rüppell found the species on the high plateau of Temben and in the Simien district. Von Heuglin found it in central Ethiopia throughout the rainy season until February, both in the mountains and plains, and noted that it seemed to depart between

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[76] Nov. Zool., vol. 29, p. 92, 1922.

[77] Journ. für Orn., 1905, p. 202.

March and June. Blanford found it at Undel Wells in April, but observed it only at low or moderate elevations, not on the high plateau country.

The breeding season is from June to August. Rüppell states that the nests are built on rocks much like those of *Hirundo rustica*. Antinori found it nesting during June, July, and August, near Mahal-Uonz, in Shoa.

It is a rather sad commentary on our knowledge of the habits of this bird that practically nothing has been added in all the years since Sharpe and Wyatt's monograph appeared. Their account (pp. 379–380) is still a summation of what is known of the life history of the mosque swallow in Ethiopia.

HIRUNDO RUFULA EMINI Reichenow

Hirundo emini Reichenow, Jour. für Orn., 1892, p. 215: Bussisi, west shoree of Lake Victoria.

Specimens collected: 2 males, 20 miles abovee mouth of Thika River, Kenka Colony, August 27, 1912.

These two specimens are the darkest examples of *emini* I have seen (19 examined) and have slightly narrower bills than any of the others studied. Both birds are molting the remiges and rectrices.

As mentioned under the discussion of *melanocrissa*, the present form is very closely related to it, and, as their respective ranges do not overlap, I keep them as races of a single species.

The range of *emini* is as follows: The Mlanje Plateau, of Nyasaland, north through Tanganyika Territory and the eastern Belgian Congo, Ruanda, and Urundi through western Uganda and Kenya Colony to the Turkana and Rendile districts to the west and east, respectively, of Lake Rudolf, north to the lake region of Shoa. Lönnberg[78] recorded Punda Melia (near Fort Hall) as "on the northeastern frontier of its known distribution." However, six years earlier Neumann[79] definitely recorded *emini* as breeding in Malo, southern Shoa, and Erlanger[80] recorded it even farther north—at Adis Abeba and the Hakaki River—but Erlanger's birds are probably all really *melanocrissa*. In the southern part of its range it appears to be more of a highland bird than farther north, and consequently its distribution in Tanganyika Territory is somewhat patchy and discontinuous.

It has been recorded from altitudes as great as 8,500 feet on Ruwenzori[81] and 7,000 feet on Mount Elgon.[82]

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[78] Kongl. Svenska Vet.-Akad. Handl., 1911, p. 79.

[79] Journ. für Orn., 1905, p. 202.

[80] Ibid., pp. 678–679.

[81] Cf. Ogilvie-Grant, Trans. Zool. Soc. London, vol. 19, p. 409, 1910.

[82] Granvik, Journ. für Orn., 1923, Sonderheft, p. 120.

Immature birds have relatively shorter and broader outer rectrices; duller, less bluish black on the upperparts; very pale rumps and underparts (as pale as in some specimens of *melanocrissa*); and a medially interrupted pectoral band of dusky spots.

The breeding season in the northern part of its range is in July. Erlanger found it nesting on July 7 at the Hakaki River, near Adis Abeba, and obtained an egg on that date. The nests are mud structures with a half-tubular entrance.

HIRUNDO SENEGALENSIS SENEGALENSIS Linnaeus

Hirundo senegalensis LINNAEUS, Syst. Nat., ed. 12, p. 345, 1766: Senegal.

SPECIMENS COLLECTED:

2 males, 3 females, Gato River near Gardula, Ethiopia, April 1–8, 1912.
1 male, 20 miles above mouth of Thika River, Kenya Colony, August 27, 1912.

The geographic variations of this swallow are somewhat obscured by the extent of individual variation throughout its range. Four races have been currently recognized, as follows:

1. *H. s. senegalensis:* Senegal eastward across the Upper Guinean savannahs through Darfur, Kordofan, the northeastern Belgian Congo, Uganda, and the "Lado Enclave" to Shoa; southward in the western part of its range to Loango.

2. *H. s. saturatior:* Said by Bannerman [83] to differ from the typical form in being much deeper chestnut on the entire underparts. The range is given as the coastal regions of the Gold Coast. Gyldenstolpe [84] has questioned the validity of *saturatior*, because in Uganda, Kenya Colony, and Ethiopia the birds (typical *senegalensis*) are variable in color, although averaging darker than Senegambian specimens. He asks, since there is so much individual variation in these birds "why should we not regard the different shade of chestnut found in birds from Senegal and from the Gold Coast merely as an individual variation? To me it seems highly possible that the coastal districts of the Gold Coast * * * are inhabited by the same race as that found in Senegal. The latter country, has, however, a drier climate than the Gold Coast, a fact which * * * must be taken into consideration." It should be noted that when describing *saturatior*, Bannerman stated that East African (Ugandan, Kenya Colony, and Ethiopian) birds are "certainly rather darker than typical examples, but are not nearly so dark as *H. s. saturatior*." I have seen no specimens of *saturatior*, but recognize it tentatively as valid.

3. *H. s. monteiri:* Differs from the typical race in having well-developed white spots on the three outer rectrices. This is the

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[83] Bull. Brit. Orn. Club, vol. 43, p. 85, 1923.

[84] Kongl. Svenska Vet.-Akad. Handl., 1924, pp. 228–229.

southernmost form, occurring from Damaraland, the Okavango River, and Elephants Vlei, northern Southwest African Protectorate, through Angola, to the mouth of the Congo River, in the west, and from Inhambane, Mozambique, north through Nyasaland, Rhodesia, the Katanga, and Tanganyika Territory to the Kilimanjaro region. According to Reichenow,[85] this form and the typical one occur together in the Loango coast, but it seems quite likely that the birds either intergrade there or come together by migratory movements only.

4. *H. s. hybrida:* Said to be paler below than *monteiri* but with the white tail spots present in varying degrees, sometimes obsolete or indicated only. Van Someren [86] records this form from Mombasa, Changamwe, Tsavo, Mbuyuni, Samburu, and Nairobi. I have seen two pale-bellied birds from the Athi River, Kenya Colony, which fit the present race, but while one of them has well-developed white tail spots, the other completely lacks them. However, I recognize the race because of the pale ventral coloration, not because of the character of the tail spots. The variability of the latter character in southern Kenya Colony suggests that in the Loango district in West Africa the same sort of variation may occur, which, if true, would explain the apparent overlapping of *monteiri* and *senegalensis*. In the United States National Museum there are three specimens of *monteiri* from Kahe, Tanganyika Territory, which are dark-bellied birds (typical *monteiri*). Kahe is only a short distance (about 40 miles) south of Mbuyuni, whence van Someren lists *hybrida*, but the former locality is much more humid than the latter. In fact, at Kahe there is a sizeable palm forest, a sure indication of humidity, while elsewhere from Taveta through Mbuyuni to Voi the country is a semiarid acacia savannah. If the intensity of coloration has anything to do with the humidity of the environment, Mombasa birds should be darker, like those from Kahe, but apparently they are not. Yet the distribution of *hybrida* as given by van Someren, is, in general, coincident with that of the south Kenyan arid region. I have not seen enough material to reject definitely *hybrida* but strongly suspect that further specimens will show its supposed characters to be wholly individual. The two birds from the Athi River are a case in point.

All six birds collected are adults. The specimen from the Thika River was just completing the tail molt when shot, the replacement of the rectrices being centrifugal. In very fresh plumage the glossy blue-black upper tail coverts are terminally edged with chestnut, but this quickly wears off. The under tail coverts are quite variable in color. Some have blackish subterminal spots 7 mm wide, while others have merely a speck of black on either web.

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[85] Die Vögel Afrikas, vol. 2, p. 417, 1903.

[86] Bull. Brit. Orn. Club, vol. 41, p. 104, 1921.

Neumann [87] writes that Ethiopian birds are somewhat smaller than West African ones. His specimens from the former region had wings of 149–155 mm (males) and 142–148 mm (females). The present series agree fairly well with these figures—150–157.5 mm (males), 144–154 mm (females).

Sharpe and Wyatt,[88] quoting von Heuglin's notes, write that this swallow is migratory in northeastern Africa. Von Heuglin found it from May to January in Kordofan and central Ethiopia, at altitudes of from 5,000 to 9,000 feet. Neumann likewise found it in the highlands from 6,500 to 8,300 feet. Brehm, however, states that it is found even on the Red Sea, but I know of no specimens from there.

The breeding season in Ethiopia appears to be from April to July. Erlanger [89] found a nest with two young about 10 days old near Harrar on April 28, while on July 7 near Akaki, near Adis Abeba, he found a nest with three eggs, one of which was smaller than the other two and may have been of another species. In Kenya Colony and Uganda van Someren [90] found nests from May to July and October to January.

Besides the specimens collected, Mearns recorded this swallow as follows: July 25, Er-re-re, 2 seen; July 26, Le-se-dun, 2 birds; August 27, Thika River, 200 observed.

HIRUNDO ABYSSINICA ABYSSINICA Guérin

Hirundo abyssinica Guérin, Rev. Zool., 1843, p. 322: Abyssinia.

Specimens collected: 1 male, Tharaka dstrict, Kenya Colony, August 12, 1912.

The material available for study is insufficient to enable me to delve very far into the systematics of this swallow. There are four races currently recognized in literature, as follows:

1. *H. a. puella:* Gold Coast, etc., east through the Upper Guinean savannahs to Darfur.
2. *H. a. maxima:* A large, very heavily streaked form from the highlands of northern Nigeria.
3. *H. a. abyssinica:* Larger than the nominate form, the ventral streaking somewhat heavier and broader: Eritrea, Ethiopia, East Uganda, Kenya Colony, and Tanganyika Territory, intergrading over a fairly large area with the next form. Smaller than *maxima*.
4. *H. a. unitatis:* Similar to *maxima* but smaller (wing, 107 as against 116 mm in the latter), the ventral black streaks less prominent

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[87] Journ. für Orn., 1905, p. 201.

[88] A monograph of the Hirundinidae or family of swallows, vol. 2, p. 400, 1885.

[89] Journ. für Orn., 1905, pp. 677–678.

[90] Ibis, 1916, p. 374.

(although heavier than in *puella* or *abyssinica*), the chestnut crown patch lighter and less extensive caudally than in *maxima.* South Africa north through the Congo and Tanganyika Territory, overlapping and intergrading with *abyssinica* in the northern half of Tanganyika Territory. Reichenow[91] has investigated the status of *unitatis* and has found that throughout northeastern, eastern, southern, and western Africa one finds birds with heavy, broad streaks and others with finer marks, and suggests that the difference is not correlated with geography but with age, the younger birds having relatively narrower streaks than the older individuals. I am unable to find any evidence in support of this suggestion, as many of the birds with narrow streaks examined are fully adult. Very young birds have the streaks less distinct, more dusky, than in adults, but the characters of *unitatis* seem to be those of mature specimens. However, if *unitatis* does occur in Kenya Colony, as Sclater and Mackworth-Praed claim, then it is not a valid form, as I have compared birds from Kenya and from northern Tanganyika with Guérin's type of *abyssinica* and find no differences. I assume that southern birds (north to southern Tanganyika, and thence north through western Tanganyika Territory to Ruanda, Urundi, and western Uganda) are uniformly more heavily streaked below than *abyssinica* and are separable as *unitatis* Sclater and Mackworth-Praed.

The single example collected is in molt and badly damaged by the shot, so its measurements are of no significance.

In Ethiopia the small stripe-breasted swallow is widely distributed from Bogosland and the Eritrean border south through Shoa and Arussi-Gallaland. Sharpe and Wyatt,[92] quoting von Heuglin, state that its altitudinal range is between 3,500 and 10,000 feet. Brehm never found it along the Red Sea coastal plain, but only in the mountains of Bogosland where it breeds in cliffs and under overhanging rocks.

In Kenya Colony it appears to breed throughout the year.

Besides the specimen collected, Mearns noted this swallow at the following places: On the Upper Hawash River colonies were found early in February; then the species was not seen again (or at least not recorded) until August 9, when 20 were noted near Meru, and 50 more were seen the following day at the same place; 20 miles east of Meru, August 11, 100 birds; Tharaka district, August 12, 200 seen; Tana River, August 23–26, 10 birds; east of Ithanga Hills, August 26, 2 seen; 20 miles above the mouth of the Thika River, August 27, 4 observed; west of Ithanga Hills, August 28, 4 birds; Athi River, August 31, 4 noted.

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[91] Journ. für Orn., 1921, pp. 265–266.

[92] A monograph of the Hirundinidae or family of swallows, p. 344, 1889.

RIPARIA RIPARIA RIPARIA (Linnaeus)

Hirundo riparia LINNAEUS, Systema naturae, ed. 10, p. 192, 1758: Europe, restricted type locality, Sweden.

SPECIMENS COLLECTED:

1 unsexed, Loco, Ethiopia, March 14, 1912.
1 unsexed, Black Lake Abaya, Ethiopia, March 24, 1912.

Soft parts: Iris brown; bill black (inside of mouth yellow); feet purplish flesh-color; claws black.

These two specimens are rather darker than any of the series of some 20 birds from Europe and Africa and may possibly be nearer to *fuscocollaris* than to typical *riparia.* Van Someren[93] records 12 specimens from various localities in Kenya Colony (Kisumu, Kibigori, Nakuru, Naivasha, and Nairobi) as *fuscocollaris.* Unfortunately, I have seen no authentic *fuscocollaris* material, and, inasmuch as the difference between the present two birds and typical European sand martins is not great, I prefer to consider them as extreme specimens of *riparia.*

Tschusi zu Schmidhoffen described *fuscocollaris* from migrant birds collected at Castelnuovo, southern Dalmatia[94] and admitted that he did not know where the breeding range might be. Van Someren found that his *fuscocollaris* agreed with birds from Turkestan and concluded that they were probably migrants from that country. It does not seem highly probable that birds would migrate from Turkestan to eastern Africa, and I feel that van Someren's identification must be taken with some mental reservation.

This sand martin appears to be uncommon in central and southern Ethiopia. Antinori did not meet with it in Shoa; neither did Neumann; and von Erlanger found it but once. In Kenya Colony records are very numerous, but the bird seems not to have been found anywhere in Somaliland, Jubaland, or southeastern Gallaland.

The bird from Black Lake Abaya is in molt in the wings and tail; the other is through molting and is in fresh plumage. According to Witherby,[95] the earliest date for a specimen with molting wings is in December, which indicates that the birds do not begin their ecdysis until some time after arriving in their winter home.

The Egyptian form, *shelleyi,* characterized by its small size (wings, 90–97 mm) is almost nonmigratory but has also been taken in our region. Sclater and Mackworth-Praed[96] record it from Khartoum and from near Renk in the Sudan. It is known also from Eritrea and Ethiopia.

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[93] Nov. Zool., vol. 29, p. 89, 1922.
[94] Orn. Jahrb., vol. 23, p. 216, 1912.
[95] A practical handbook of British birds, vol. 1, p. 514, 1920.
[96] Ibis, 1918, pp. 713–714.

Besides the actual specimens collected, Mearns recorded this swallow as follows: Aletta, March 13–15, 500; Gidabo River, March 15–17, 200 birds; Abaya Lakes, March 19–26, 1,000 seen; spring between Abaya Lakes and Gardula, March 26–29, 100; Gato River near Gardula, March 29–May 17, 10 birds noted. The absence of observational records after leaving southern Shoa suggests that the species is relatively scarce in northern Kenya Colony. When we recall the general aridity of the Rendile country, this becomes more understandable, but these swallows probably occur along Lake Rudolf.

RIPARIA PALUDICOLA MINOR (Cabanis)

Cotyle minor CABANIS, Museum Heineanum, vol. 1, p. 49, 1850: "Northeastern Africa", i. e., Dongola (cf. Reichenow, Journ. für Orn., 1920, p. 88).

SPECIMENS COLLECTED:

1 female, 1 unsexed, Adis Abeba, Ethiopia, December 30, 1911–January 1, 1912.
1 male, Sadi Malka, Ethiopia, January 29, 1912.
3 unsexed, Hawash River, Ethiopia, February 10, 1912.

In the absence of adequate material from southern Africa and the Sudan, I follow the arrangement suggested by Sclater and Mackworth-Praed.[97] According to these authors, there are four races of this swallow, as follows:

1. *R. p. paludicola:* South Africa north to Benguella in Angola and the Zambesi River in Rhodesia and Mozambique. Wings, 102–110 mm.
2. *R. p. ducis:* Central and eastern Africa, north at least to Mount Kenya in Kenya Colony. Wings, 95–102 (average, 98 mm); upperparts, especially of the head, darker brown than in the typical form.
3. *R. p. minor:* Ethiopia, Sennar, Upper Blue Nile. Wings as in *ducis* or slightly larger; paler than *ducis*, more like *paludicola* but with the throat and breast paler.
4. *R. p. sudanensis:* Lake Chad to the Bahr el Ghazal and the White Nile. The palest and smallest of all the races, wings 90–98 (average, 95 mm).

There is some doubt as to the validity of *sudanensis*. Lynes[98] states that his Darfur birds agree with others from Lake Chad, Bahr el Ghazal, the White Nile, and also with specimens from the Blue Nile (referred to *minor* by Sclater and Mackworth-Praed).

The male collected has the following dimensions: Wing, 100; tail, 47; culmen, 6; tarsus, 9.5 mm. The female: Wing, 99; tail, 43; culmen, 7; tarsus, 10.5 mm. The unsexed birds: Wing, 99–102; tail, 41–47; culmen, 7; tarsus, 10–10.5 mm.

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[97] Ibis, 1918, pp. 714–715.

[98] Ibis, 1925, p. 125.

Erlanger[99] found this bank swallow nesting in July and August near Adis Abeba. In Darfur Lynes records *sudanensis* as breeding late in autumn. Both von Heuglin and Blanford record seeing vast swarms in April and June and September and it has been suggested from this that the species is migratory.

Riparia minor schoensis Reichenow[1] is a synonym, as far as I can see.

Sclater[2] recognizes *schoensis*, but I fail to find any distinctive characters to separate it from *minor*. If additional material should show *schoensis* to be valid, the present specimens would have to be referred to that race.

PTYONOPROGNE RUFIGULA RUFIGULA (Fischer and Reichenow)

Cotyle rufigula Fischer and Reichenow, Journ. für Orn., 1884, p. 53: Lake Naivasha, Kenya Colony.

Specimens collected: 1 male, Endoto Mountains, Kenya Colony, July 22, 1912.

The African rock martin is closely related to the large pale South African species *P. fuligula* and has, indeed, been considered conspecific with it by many writers. I have not sufficient specimens to delve very deeply into the systematics of this species and so follow Lynes,[3] who has examined a great deal of material.

According to this investigator, the range of *rufigula* is from northern Angola and the Shire Highlands of Nyasaland north to northern Nigeria, French Equatorial Africa (Ubangi-Shari district), Uganda, and Kenya Colony. To this should be added the Maneguba district of Cameroon[4] and Kajo Kaji, southern Anglo-Egyptian Sudan.[5]

Mackworth-Praed[6] noted that the birds of Ethiopia and Bogosland, Eritrea, were slightly larger and paler than those of Kenya Colony (*rufigula*) and referred to them as "*R. rufigula* subsp.?" He guessed, but seemed not too sure of his guess, that Zedlitz's form *Riparia rupestris pusilla* was probably conspecific with *rufigula* and that *pusilla* was the name of the Ethiopian and Eritrean specimens. Lynes not only corroborated this, but showed that *pusilla* occurred westward across the Sudan to Darfur.

Sclater[7] considers *rufigula* specifically distinct from *obsoleta*. If it were not for the fact that *P. o. arabica* and *P. r. pusilla* both occur in Eritrea, it would seem better to consider them both one species. It may be that *arabica* and *pusilla* do not actually occur side by side, in which case it would be possible to put all these forms in one specific group—*obsoleta*.

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[99] Journ. für Orn., 1905, p. 674.

[1] Journ. für Orn., 1920, p. 88: Adis Abeba.

[2] Systema avium Æthiopicarum, pt. 2, p. 584, 1930.

[3] Ibis, 1926, pp. 402–405.

[4] Bannerman and Bates, Ibis, 1924, p. 228.

[5] Sclater and Mackworth-Praed, Ibis, 1918, p. 716.

[6] Ibis, 1917, p. 389.

[7] Systema avium Æthiopicarum, pt. 2, p. 585, 1930.

In Darfur, Kordofan, and northern Nubia *pusilla* breeds in midwinter and molts in April and May. In Kenya Colony and Tanganyika Territory, *rufigula* nests from January to May and molts in May and June.

Mearns made the following entries about this swallow in his notebooks: Plains south and at base of Endoto Mountains, July 19–24, 220 birds seen; Northern Guaso Nyiro River, July 31, 4 noted; Lekiundu River, August 4–8, 20 seen.

PSALIDOPROCNE HOLOMELAENA MASSAICA Neumann

Psalidoprocne holomelaena massaica NEUMANN, Orn. Monatsb., 1904, p. 144: Kikuyu, Kenya Colony.

SPECIMENS COLLECTED: 1 male, Meru Forest, Kenya Colony, August 9, 1912.

This saw-winged swallow is currently considered as comprising two geographic races, the typical South African form and the East African *massaica*, which differs from the former in having the sheen of the plumage more oily brownish green. In southern *holomelaena* the green color is well marked on the crown and nape; in *massaica* it averages less pronounced there. The differences, however, are very slight, and I agree with Gyldenstolpe,[8] who writes that when a large quantity of material "is available for examination, it seems highly possible that this distinction will prove to be of no value for the separation of an East African race." On the other hand, it must be remembered that rather slight color differences in this genus appear to be constant enough in many cases to warrant their usage as specific characters. The color of the under wing coverts does not hold as a racial criterion, although it was on this character that Neumann originally described *massaica*. I have examined a series of 20 *massaica* and 2 *holomelaena* and find the darkness or lightness of the under wing coverts to be individually variable.

The range of *massaica*, as far as known, is from the Uluguru and Usambara Mountains, Tanganyika Territory, west to the eastern Belgian Congo (Kivu district), north through Ruanda, Urundi, Ruwenzori, Uganda, and Kenya Colony approximately to the Equator. Meru, north of Mount Kenya, and Mount Elgon appear to be the northern limits of its range. Lönnberg[9] first recorded it from Meru, and the present specimen is the second from that locality.

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[8] Kongl. Svenska Vet.-Akad. Handl., 1924, p. 230.

[9] Kongl. Svenska Vet.-Akad. Handl., 1911, p. 79.

PSALIDOPROCNE ANTINORII Salvadori

Psalidoprocne antinorii SALVADORI, Ann. Mus. Genova, 1884, p. 123: Denz, Ethiopia.

SPECIMENS COLLECTED:

2 males, 1 female, Aletta, Ethiopia, March 10, 1912.
1 female, Loco, Ethiopia, March 13, 1912.

The present species is one of the forms of *Psalidoprocne* peculiar to northeastern Africa, agreeing in this respect with *blanfordi* and *pristoptera*. *P. antinorii* is easily distinguishable from the other two named above in that it has a purplish-bronze sheen on the feathers, particularly of the upperparts.

As far as known, *P. antinorii* occurs only in Ethiopia from Harrar and Adis Abeba to Gara Mulata, the Shoan Lakes region, Gofa, and Kaffa, and the north end of Lake Rudolf. Neumann[10] writes that it inhabits the whole south Ethiopian mountainous region south of the Hawash River and that its altitudinal range is from 7,600 to 10,300 feet. It does not occur in the drainage area of the Blue Nile.

The breeding season is little known, but appears to be rather prolonged. Neumann found that the birds were in breeding condition in Kaffa in the beginning of March. Erlanger,[11] on the other hand, found a nest with two very young nestlings at Adis Abeba on July 26.

The present four specimens are very uniform in color, a fact that is in keeping with Neumann's observation that the color is very constant in this species. Inasmuch as relatively few specimens are available in museums, I give in table 7 the measurements of the four birds.

TABLE 7.—*Measurements of four specimens (adults) of* Psalidoprocne antinorii *from Ethiopia*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Aletta	Male	104.5	74	5.5	10
Do	do	108.0	74	5.0	9
Do	Female	91.0	47	6.0	10
Loco	do	101.0	64	6.0	10

The female from Aletta is molting the remiges, rectrices, and the feathers of the forehead and crown. This accounts for its short tail, as the longer outer rectrices are missing. Reichenow[12] gives the wing dimensions of *antinorii* as 95 to 110 mm, which indicates a greater maximal variation than is shown by the birds before me.

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[10] Journ. für Orn., 1905, p. 202.
[11] Ibid., p. 679.
[12] Die Vögel Afrikas, vol. 2, p. 429, 1903.

Family CAMPEPHAGIDAE, Cuckoo-Shrikes

CAMPEPHAGA FLAVA FLAVA Vieillot

Campephaga flava Vieillot, Nouv. Dict. d'Hist. Nat., vol. 10, p. 49, 1817 (female): Southern Africa.

Specimens collected: 1 male, Thika River, 20 miles above the mouth, Kenya Colony, August 27, 1912.

The black cuckoo-shrike has two races, according to Neumann,[13] as follows:

1. *C. flava flava:* From the Cape of Good Hope to northern Angola and to the Katanga, north through Mozambique and Nyasaland to Lake Kivu, across Tanganyika Territory and Kenya Colony to Tertale and Lake Stefanie in southern Ethiopia and the Juba River in southern Somaliland, intergrading in Uganda and the Nandi and Kakamega districts of western Kenya Colony with the western race *petiti.*

The range as given above is based on the account given by Neumann. However, Neumann agrees with other investigators that *Lanicterus hartlaubii* Salvadori[14] is merely a color variation of typical *flava* (or *nigra* as he calls it). But *hartlaubii* was based on a bird said to have come from Anseba, Bogosland. If the type did come from Bogosland, the range would have to be extended north across all Ethiopia to the Eritrean border. As far as I have been able to discover, the species has otherwise never been taken north of Tertale, and I therefore am inclined to question the locality of the type of *hartlaubii.*

2. *C. flava petiti:* From northern Angola and southern Gaboon to the Congo Basin and east to Uganda, Urundi, and Ruanda, intergrading in the last three with the typical race. In this race the female has the underparts yellow instead of white as in *flava*, more or less barred with dark fuscous. The adult males are very similar but typical *flava* has the inner webs of the remiges washed with yellow, while in *petiti*, these margins are only slightly or, not at all, yellowish. Van Someren[15] considers *petiti* specifically distinct because of the marked difference in the females of the two and also because he has found the two forms in the same place. His latter argument, however, loses much of its strength because of the fact that the only place where he obtained both forms was in the country where the two intergrade (the Uganda-Kenya border) and where individuals of both types might well be expected to occur. Furthermore, when we remember that the members of this genus are so prone to produce color varieties (such as *hartlaubii* in *flava* and *xanthornoides* and *rothschildi* in *phoenicea*),

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[13] Journ. für Orn., 1916, pp. 153–154.

[14] Ann. Mus. Genova, vol. 4, p. 439, 1873.

[15] Nov. Zool., vol. 29, pp. 106–107, 1922.

it would not be surprising if typical *flava* stock should occasionally produce a yellowish-bellied female of the *petiti* plumage.

The present species has been usually called *C. nigra* in literature, but Oberholser[16] has shown that *flava* is based on the female of this species and has page priority over *nigra* (based on an adult male).

The single specimen obtained by the Frick expedition is in molt but, on the whole, in good fresh plumage. Its dimensions are as follows: Wing, 101; tail, 98; culmen, 15; tarsus, 20 mm.

Neumann has shown that the males go through a sequence of three plumages, or, in other words, do not attain the adult feathering until the third year.

Bannerman and Bates[17] find that in the western form *petiti*, "a young male has nearly the whole underside bright yellow, only a few feathers having blackish spots and bars. Some immature males in the collection are barred black and white on the underside, with little or no yellow. Some nearly adult black males have on the breast a few white feathers with dark bars, but no yellow. From this it looks as though the first juvenile plumages were yellow on the underside, and a later one barred white and blackish." I very much doubt that this is so; in *C. quiscalina*, the adult female of which has a pure-yellow under surface, the young of both sexes are whitish below, barred with blackish. It seems that the "young male" in question was wrongly sexed and is really an adult female.

Sclater[18] considers *petiti* a distinct species.

Being an inhabitant of forests, or, at least, fairly well-wooded country, this bird is somewhat local in its distribution.

Little seems to be known of its breeding season. Sjöstedt,[19] however, notes that a female shot on March 16, on Mount Kilimanjaro, had an egg, ready to be laid, in its oviduct.

Besides the specimen collected, Mearns noted this species several times. The following records are from his notes: Thika River, August 26–27, 14 birds; west of Ithanga Hills, August 28, 10 seen; Athi River, August 29–31, 15 birds noted.

CAMPEPHAGA PHOENICEA (Latham)

Ampelis phoenicea Latham, Index ornithologicus, vol. 1, p. 367, 1790: Africa.

Specimens collected:

1 male, Botola, Sidamo, Ethiopia, March 5, 1912.
1 male, Aletta, Ethiopia, March 6, 1912.
2 males, Aletta, Ethiopia, March 9, 1912.
1 male, 1 female, Gato River near Gardula, Ethiopia, April 12–20, 1912.
1 immature male, Turturo, Ethiopia, June 15, 1912.
1 juvenal male, Biderou, Ethiopia, June 15, 1912.

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[16] Proc. U. S. Nat. Mus., vol. 28, p. 921, 1905.

[17] Ibis, 1924, p. 247.

[18] Systema avium Æthiopicarum, pt. 2, p. 590, 1930.

[19] Wissenschaftliche Ergebnisse der schwedischen zoologischen Expedition nach dem Kilimandjaro . . . Deutsch-Ostafrika, 1905–6, etc., Vögel, p. 111, 1910.

Soft parts (adult male): Iris dark brown; bill, feet, and claws glossy black; the gape swollen and pinkish flesh color.

As pointed out by Oscar Neumann,[20] this species is peculiar in that the adult males usually have a red patch on the outer, upper, lesser, and middle primary coverts, but that not infrequently this area is bright chrome-yellow instead of red. Occasionally the patch has an external border of lighter yellow as well. Quite naturally these color forms were once considered distinct species and were given names. Thus, *Campephaga xanthornoides* (Lesson)[21] and *Campephaga rothschildi* Neumann,[22] both based on birds with yellow wing patches, are merely synonyms of *C. phoenicea*. Hartert[23] in writing of the type of *rothschildi*, states that it "is not a species, but an aberrant specimen of the yellow-shouldered variety ["*xanthornoides*"] of *Campephaga phoenicea*, with yellow outer primary coverts. Not only the colour of the shoulder patch, but also the extent of the red or yellow colour varies, and in this case the latter colour has extended over the outer primary coverts."

The male taken near Aletta and the one collected at Gato River are of the "*rothschildi*" type; one of the other Aletta males has pure-red shoulder patches, while the other two adult males have these patches mostly red but with yellow middle coverts forming a yellow posterior margin to the color areas.

The immature male from Turturo is in an advanced stage of the postjuvenal molt and presents a rather bizarre appearance, being irregularly black and white below, brown and black above. Its colored shoulder patches are peculiar, as the lesser coverts are fiery orange-red and the middle coverts pale yellow barred with fuscous. Its tail molt is likewise peculiar in that the four middle pairs of rectrices and the outermost pair are new, black, adult feathers, while the next to the outermost pair are old, fuscous and yellow, juvenal feathers. The wing molt appears to begin at the carpal joint and proceed outward but not inward, that is, it affects the primaries and not the secondaries. The molt of the latter group of remiges seems to begin with the tertials and to proceed outward toward the wrist joint, but the secondaries do not begin to molt until all but the three outermost primaries are shed and renewed. This condition, however, may be found to be not entirely characteristic, as I have seen but one molting specimen.

The juvenal male resembles the adult female but is much less barred below, is somewhat darker brown on the top of the head, upper back, and upper tail coverts, largely lacks the whitish on the forehead, and has more pointed tips to the rectrices, the outer two pairs of which are much more broadly tipped with yellow than in the adult female. Adults vary considerably in size, but apparently the variations are nongeographic. Eight adult males have the following dimensions: Wing, 98–108 (average, 105); tail, 92–107 (94.7); culmen from base, 14.5–18.5 (16.4 mm). Three adult females—wing, 95.5–108 (103.3); tail, 91–103 (96.3); culmen from base, 16.5–18.5 (17.6 mm).

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[20] Journ. für Orn., 1916, pp. 146–154.

[21] Ann. Sci. Nat., ser. 2, vol. 9, p. 169, 1838.

[22] Journ. für Orn., 1907, p. 594.

[23] Nov. Zool., vol. 29, p. 375, 1922.

This cuckoo-shrike occurs from Senegal to the Niger, thence east to Uganda (south to the northern shores of Lake Victoria) and to the Anglo-Egyptian Sudan (Provinces of Darfur, Sennar, Mongalla, Lado Enclave and Bahr el Ghazal) to Eritrea and Ethiopia, south to the southern part of Arussi-Gallaland, the Rendile and Turkana country surrounding Lake Rudolf, and through Uganda to the Kakamega and North Kavirondo districts of Kenya Colony, but not occurring (as far as known) on Mount Elgon.

Erlanger[24] found that birds shot near the Daroli River in February and March were in breeding condition. In Uganda, van Someren[25] found the species breeding in April, and says: "A nest with two eggs was taken in April. The nest reminded one of that of the Chaffinch; it was well covered with lichen. The eggs were creamy green with purply spots and blotches. A young male in moult was shot in November." Seth-Smith[26] found a nest late in March near Mpumu, Uganda.

GRAUCALUS CAESIA PURA Sharpe

Graucalus purus Sharpe, Ibis, 1891, p. 121: Mount Elgon.

Specimens collected:

1 male, 1 female, Loco, Ethiopia, March 13, 1912.
1 male, 1 female (?), Meru Forest, Equator, Kenya Colony, August 10, 1912.

Soft parts: Iris dark brown, bill black, feet dark gray, claws black.

The comparative material of this species available is slight, but it corroborates the generally accepted fact that there are three valid races, as follows:

1. *G. caesia caesia:* South Africa north to central Zululand (Eshowe) and the Zoutspanberg district of the Transvaal.

2. *G. caesia pura:* Eastern Africa from Nyasaland and northern Mozambique north through Tanganyika Territory and the eastern Belgian Congo (region immediately west of Lake Tanganyika, and the Kivu country, to Ruwenzori) through Kenya Colony to Somaliland and Ethiopia, in which country it occurs north at least as far

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[24] Journ. für Orn., 1905, p. 689.

[25] Ibis, 1916, p. 387.

[26] Ibis, 1913, p. 494.

as Adis Abeba. This form resembles *caesia* but is very slightly smaller, the chief difference being in the bill, which is noticeably narrower and less robust in *pura*.

3. *G. caesia preussi:* Cameroon. In this form the throat is darker, a deep slate-black in the males, and the size is generally smaller than in the nominate form (wings 110–117 mm as against 116–128.5 mm in *pura*, and 128–132 mm in *caesia*).

The coloration varies considerably in intensity in a series of 13 specimens of *pura* examined, the two extremes being noticeably different in shade. This nongeographic variation (the darkest and the lightest birds come from the same locality) supports Gyldenstolpe's discussion[27] of van Someren's statement[28] that "the series in the Tring Museum from British East Africa, west to Lake Kivu, shows two distinct forms, those from the Kivu district being darker and smaller." Gyldenstolpe finds that this difference does not hold.

It is rather strange that this caterpillar-shrike sould be unknown in most of Uganda, especially since it occurs on the Uganda-Congo border (in the Ruwenzori range) and on the Uganda-Kenya border (Mount Elgon). The only plausible explanation appears to be the question of altitude, most of Uganda being too low for this bird, which is chiefly a denizen of mountain forests. In Ethiopia, Neumann[29] found it in the thickest, darkest parts of the forests at altitudes of 7,200 to 9,200 feet. Similarly, Erlanger[30] found it only on wooded mountains in that country.

According to Neumann, the breeding season in Ethiopia is in February and March. Van Someren[31] found the birds breeding in June, and he obtained young just out of the nest in July.

Family DICRURIDAE, Drongos

DICRURUS ADSIMILIS DIVARICATUS (Lichtenstein)

Muscicapa divaricata Lichtenstein, Verzeichniss der Doubletten des zoologischen Museums . . . zu Berlin, etc., p. 52, 1823: Senegal.

Specimens collected:

5 adult males, 1 adult female, 1 unsexed, Dire Daoua, Ethiopia, December 2–21, 1911.
1 unsexed, Ourso, Ethiopia, no date.
1 adult female, Sadi Malka, Ethiopia, January 27, 1912.
1 adult male, 1 adult female, Hawash River, Ethiopia, February 10, 1912.
1 adult male, no locality, Ethiopia, March 3, 1912.
1 adult female, Lake Abaya, southeast, Ethiopia, March 21, 1912.
8 adult males, 7 adult females, 1 unsexed, 2 immature males, 3 immature females, Gato River near Gardula, Ethiopia, March 30–May 11, 1912.

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[27] Kongl. Svenska Vet.-Akad. Handl., 1924, pp. 192–193.
[28] Ibis, 1916, p. 385.
[29] Journ. für Orn., 1905, p. 213.
[30] Ibid., p. 688.
[31] Nov. Zool., vol. 37, p. 299, 1932.

2 immature females, Bodessa, Ethiopia, May 27–29, 1912.
1 adult male, Sagon River, Ethiopia, June 3, 1912.
1 immature male, Tertale, Ethiopia, June 10, 1912.
1 immature female, Turturo, Ethiopia, June 15, 1912.
1 adult male, Wobok, Ethiopia, June 18, 1912.
1 immature female, Endoto Mountains, Kenya Colony, July 24, 1912.
1 adult male, 1 immature male, Lekiundu River, Kenya Colony, August 4–6, 1912.
1 adult male, Tharaka district, Kenya Colony, August 12, 1912.
1 immature male, 3 immature females, Tana River, Kenya Colony, August 15–26, 1912.

Soft parts: Immature female—iris red, feet and bill black. Adult male—iris cherry red; bill, feet, and claws black.

Of this race of the common African drongo, the following are synonyms: *Dicrurus fugax* Peters[32] and *Edolius lugubris* Hemprich and Ehrenberg.[33]

According to Sclater,[34] Reichenow's *münzneri* (not *münzeri* as given by Sclater) is probably the same as *divaricatus.*

Bannerman[35] recognizes three subspecies of *D. adsimilis*, as does also Sclater. They are as follows:

1. *D. a. adsimilis:* South Africa north to the Limpopo River. Characterized by its large size (wings, 131–141 mm).

2. *D. a. divaricatus:* Rhodesia, Angola, and Mozambique north to Ethiopia, the Sudan, and Senegal, but exclusive of the coastal districts of Upper Guinea from Sierra Leone to Togoland. Similar to *adsimilis* but smaller (wings, 115–136 mm).

3. *D. a. atactus:* The coastal districts of Upper Guinea from Sierra Leone to the Gold Coast and Togoland. This race is characterized by its deep velvety-blue sheen, less greenish blue than in either of the other two forms, and by having the lining of the remiges uniformly dark; size intermediate between *adsimilis* and *divaricatus*, wings averaging 128 mm (the variational range given by Bannerman is 122–138 mm, but the type, which I have examined, has a wing length of only 117 mm).

Recently van Someren[36] has described a fourth race *jubaensis*, characterized by its short tail.

Some writers have claimed that the birds of coastal East Africa (from southern Kenya Colony to Inhambane) average smaller than inland birds and are thus worth recognizing as *D. a. fugax.* Van Someren[37] and Gyldenstolpe[38] are among those who find *fugax* to be constantly small in size. I have seen one bird from Lumbo, Mozambique, and it is small, having a wing length of only 116 mm. Another from Morogoro, Tanganyika Territory, is still smaller, with a wing length of 110 mm. So far the evidence favors *fugax*. Van Someren, however, notes a series from Mombasa, Changamwe, Taveta, etc., as having wings of from 117–127 mm in the males, 117–119 mm in the females, and refers these birds to *fugax*. I have examined 4 males and 10 females from Changamwe and find the wing length to vary from 123.5 to 129 mm in the males, from 110.5 to 132 mm in the females, while birds from as far inland as Uganda and the southern Sudan are no larger. As may be seen from table 8, the present series from Ethiopia also varies greatly in size, and I can not agree that *fugax* is valid. Only adults are tabulated.

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[32] Journ. für Orn., 1868, p. 132: Inhambane.
[33] Symbolae physicae, etc., folio S, pl. 8, fig. 3, 1828: Dongola.
[34] Systema avium Æthiopicarum, pt. 2, p. 594, 1930.
[35] Ibis, 1920, pp. 440–444.
[36] Journ. East Africa and Uganda Nat. Hist. Soc., no. 37, p. 196, July 1931: Juba River.
[37] Nov. Zool., vol. 29, p. 125, 1922.
[38] Kongl. Svenska Vet.-Akad. Handl., 1924, pp. 20–21.

TABLE 8.—*Measurements of 33 adult specimens of* Dicrurus adsimilis divaricatus

Locality	Sex	Wing	Tail	Culmen	Tarsus
ETHIOPIA:		*Mm*	*Mm*	*Mm*	*Mm*
Dire Daoua	Male	121.0	106.0	19.0	18.5
Do	do	123.0	102.0	19.5	21.0
Do	do	128.0	111.0	19.0	19.5
Do	do	119.0	103.0	20.0	19.5
Do	do	127.5	112.0	20.0	18.0
Hawash River	do	129.0	113.0	19.5	20.0
Do	do	129.0	116.0	17.0	19.5
Gato River	do	126.5	108.5	20.5	19.0
Do	do	130.0	115.0	20.0	19.0
Do	do	126.0	108.0	20.0	19.0
Do	do	127.0	109.5	19.0	18.5
Do	do	132.5	115.0	20.0	19.0
Do	do	124.0	109.0	18.5	20.5
Do	do	121.5	102.5	20.5	18.0
Do	do	124.5	109.0	20.5	18.0
Sagon River	do	129.0	112.0	21.0	20.0
Wobok	do	119.5	108.0	20.0	19.5
KENYA COLONY:					
Lekiundu River	do	119.0	109.0	19.0	18.5
Tharaka district	do	121.0	108.0	18.5	19.0
ETHIOPIA:					
Ourso		125.5	102.0	19.0	17.5
Dire Daoua		120.0	103.0	19.0	19.0
Gato River		124.0	112.0	19.5	18.0
Dire Daoua	Female	126.0	108.0	20.0	18.0
Sadi Malka	do	123.0	112.0	18.5	20.0
Hawash River	do	122.0	107.0		20.5
Lake Abaya	do	119.0	101.5	18.0	18.0
Gato River	do	119.0	101.0	18.0	20.0
Do	do	121.0	109.0	18.5	19.0
Do	do	124.0	107.0	19.0	18.5
Do	do	128.0	109.5		19.0
Do	do	125.0	112.5	19.5	20.0
Do	do	124.0	110.0	20.5	19.0
Do	do	116.0	99.0	20.0	20.0

The present series admirably illustrates all the plumages of this drongo. One young male taken on May 11 was about a week out of the nest when collected. It has the remiges and rectrices only a third grown and has the chin and upper throat largely bare. The top of the head and the upper back are dull fuscous-black, the lower back slightly washed with brownish, and the feathers tipped with brownish gray, giving a somewhat barred effect. The feathers of the underparts are dark fuscous-black edged terminally with grayish, the tail feathers and the two innermost pairs of secondaries are black with a slight greenish-blue sheen; the other rectrices are fuscous on the outer, and earth brown on the inner webs. Shelley[39] writes that the nestling is "browner than the adults, with broad brownish white edges to the feathers of the forehead, front of crown, scapulars." Out of about 20 young birds examined, only two have light edges on the crown and forehead feathers.

By the time the chin and upper throat are fully feathered, the remiges and rectrices are about three-quarters full size. This stage is shown by several specimens. Shelley distinguishes three plumage stages—the nestling, the immature, and the adult. The immature plumage is like that of the adult but has whitish edges on some of the feathers of the breast, under tail coverts, and under wing coverts. From the extensive material available for study I find that this plumage is acquired by an incomplete postjuvenal molt, the old (juvenal) rectrices and remiges being retained. The molt begins on the crown and nape, then spreads to the upper back, then to the lower back, the upper wing coverts, and the upper tail coverts, to the throat and upper breast, and finally to the lower breast and abdomen. The feathers of the latter region are tipped with white but are otherwise black with a greenish-blue sheen (not dull fuscous-brown as in the first pennaceous feathering). Occasionally some of the greater and middle upper wing coverts are also tipped with whitish.

The breeding season in Ethiopia is from March to June. Erlander[40] found nests with eggs in northern Somaliland on March 1, and at Arba, between Harrar and Adis Abeba, on June 8. Mearns found fledged young still attended by the parents, at Gato River, from April 9 to May 11.

The abundance of this drongo is reflected in the number of times Mearns noted it in his diary, a transcript of which follows: At the Gidabo River, March 15–17, 10 birds were seen; Abaya Lakes, March 18–26, 180; between the Abaya Lakes and Gardula, March 26–29, 25 birds; Gato River near Gardula, March 26–May 17, "abundant"; Anole and Kormali, May 17, 4 seen; Sagon River, May 19, 20 noted; Bodessa, May 19–June 3, 50 birds; Sagon River, June 3–6, 200; Tertale, June 7–12, 90; El Ade, June 12–13, 10 birds; Mar Mora, June 14, 25; Turturo, June 15–17, 100 seen; Anole, June 17, 100 birds; Wobok, June 18, 100; near Saru, June 19, 100; Yebo, June 20, 50; Karsa Barecha, June 21, 100; Malata, June 22, 20 seen; then none was recorded until the expedition reached the Endoto Mountains, July 19–24, when 100 birds were noted; Er-re-re, July 25, 50; Le-se-dun, July 26, 50; Malele and south for 40 miles, July 27–30, 200 seen; Northern Guaso Nyiro River, July 31–August 3, 50 birds; Lekiundu River, August 4–8, 100 seen; Guaso Mara River, August 9, 10 birds; Tharaka district, August 12–14, 24 birds observed, Tana River, August 15–26, 750 birds; Thika River, August 26–28, 70; between Thika and Athi River, August 29, 100; Athi River, August 30–31, 50 birds seen.

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[39] The birds of Africa, etc., vol. 5, pt. 2, p. 173, 1912.

[40] Journ. für Orn., 1905, pp. 703–704.

Family ORIOLIDAE, Old World Orioles

ORIOLUS AURATUS NOTATUS Peters

Oriolus notatus PETERS, Journ. für Orn., 1868, p. 132: Tete, Zambesi valley.

SPECIMENS COLLECTED: 1 female, Tana River at mouth of Thika River, Kenya Colony, August 25, 1912.

This form of the African golden oriole occurs from Damaraland, Angola, Mashonaland, and Mozambique north through Nyasaland throughout Tanganyika Territory to southwestern Uganda and to Tana River and Lamu and to the Juba River in Kenya Colony. In southern Ethiopia, southern Sudan, eastern Uganda, west to Upper Guinea as far as Senegal, it is replaced by typical *auratus*. Adult males of the two differ in the following respects: The central pair of rectrices are black in both, but the three outer pairs always have a large basal black area in *auratus* and are pure yellow, with occasionally some black on or near the shaft, in *notatus;* the inner secondaries are more broadly margined with yellow in *notatus* than in *auratus.* The adult females can be distinguished by the fact that *notatus* has broad yellow margins to the outer webs of the inner secondaries. Immature specimens of *notatus* likewise may be identified from corresponding examples of *auratus* by the fact that the former have broad yellow edges on the inner secondaries.

Meinertzhagen[41] writes that birds from Damaraland are "frequently larger than eastern African specimens, but this is by no means constant." Van Someren[42] compared his series from Kenya Colony and Uganda with Angolan birds and found the former to be smaller, "the eastern birds having wings of ♂ 130–137, ♀ 130–135 mm., the western birds ♂ 140–147, ♀ 135–145 mm. As we have no Nyasaland birds, I am unable to say which are typical." If the eastern, smaller, birds are the typical ones, as seems likely, Bocage's name *anderssoni*[43] is available for the southwestern larger ones. Four birds from General Machado, Angola, are not larger than others from East Africa.

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[41] Ibis, 1923, p. 63.

[42] Nov. Zool., vol. 29, p. 126, 1922.

[43] Jorn. Sci. Nat. Lisboa, vol. 2, p. 342, 1870: Damaraland.

While Sclater,[44] Meinertzhagen, and others consider the birds of southwestern Ethiopia (Omo region, etc.) typical *auratus*, it may be noted that Neumann[45] writes that a male he collected on the Omo River has only a sprinkling of black on the inner webs of the outer rectrices and could be identified as *notatus* or as *auratus* equally well. He decides that the birds of the Omo district are really intergrades between the two. In that area he found the species exclusively in forests and not ascending above 6,000 feet in the mountains.

Granvik[46] records both *auratus* and *notatus* from Mombasa. All these birds must be *notatus*, but his action indicates the variable nature of these birds. I find the distribution of black on the outer rectrices to vary considerably but have seen no specimens from East Africa that I would confuse with true *auratus*. The rectricial pattern character does not hold except for adult males. As a rule adult males of *notatus* have the upper primary coverts broadly edged with yellow, while in *auratus* these feathers are only minutely tipped with yellow.

The extreme variability of the orioles of the *auratus* and *monacha* groups renders the systematics of these birds rather difficult, but it is of great interest in that it appears to be largely mutational in character. The fact that so many patterns appear commonly indicates the absence of selective value of this character. Then, by inference, we are strengthened in our conclusions regarding the actuality of the races by virtue of their average stability.

For a female, the present example is rather large, having a wing length of 137.5 mm, larger than the maximal figure given by van Someren for *notatus* and larger than his minimal figure for *auratus*. The bird is in fresh plumage. Granvik's birds taken at Mombasa late in April were all in molt at the time. Birds from Kilimanjaro, late in June and early in July, are in fresh plumage, as are also some taken in October and November in central Tanganyika Territory.

ORIOLUS MONACHA PERMISTUS Neumann

FIGURES 6, 7

Oriolus monachus permistus NEUMANN, Orn. Monatsb., 1904, p. 145: Gadat, Gofa, Ethiopia.

SPECIMENS COLLECTED:

1 adult male, 1 adult female, Hawash River, Ethiopia, February 11–12, 1912.
1 adult male, Cofali, Ethiopia, March 3, 1912.
1 subadult female, Malke, Ethiopia, March 3, 1912.
1 adult male, 1 adult female, Sidamo Province, Ethiopia, March 4, 1912.
5 adult males, 3 adult females, Aletta, Sidamo, Ethiopia, March 6–7, 1912.
1 adult male (?), Lake Abaya, Ethiopia, March 21, 1912.

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[44] Systema avium Æthiopicarum, pt. 2, p. 647, 1930.

[45] Journ. für Orn., 1905, p. 232.

[46] Journ. für Orn., 1923, Sonderheft, pp. 145–146.

Soft parts: Adult male—iris dark red to carmine-red; bill reddish brown; feet plumbeous; claws plumbeous to blackish. In immature and subadult birds, the bill is black.

The birds from the Hawash River are intermediate between *permistus* and typical *monacha* but are nearer to the former, with which race they are here identified. The one from Lake Abaya approaches *reichenowi* considerably.

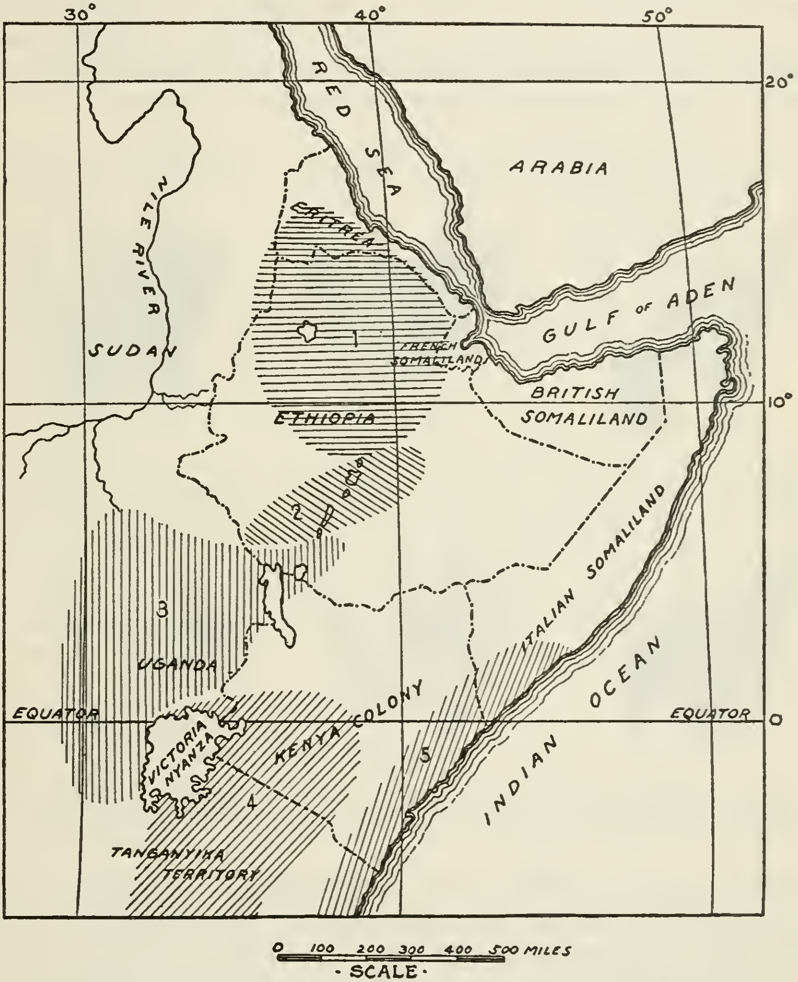
30°
40°
50°
20°
10°
0
RED SEA
ARABIA
NILE RIVER
ERITREA
GULF OF ADEN
SUDAN
FRENCH SOMALILAND
BRITISH SOMALILAND
ETHIOPIA
1
2
3
4
5
ITALIAN SOMALILAND
UGANDA
EQUATOR
EQUATOR
KENYA COLONY
VICTORIA NYANZA
OCEAN
INDIAN
TANGANYIKA TERRITORY
0 100 200 300 400 500 MILES
· SCALE ·

Figure 6.—Distribution of *Oriolus monacha* in northeastern Africa.

1. *O. m. monacha.*
2. *O. m. permistus.*
3. *O. m. rolleti.*
4. *O. m. kikuyuensis.*
5. *O. m. reichenowi.*

The systematics of the African black-headed orioles is a subject of considerable complexity, no small part of which is due to the divergent results published by different investigators. The best review is that by Meinertzhagen,[47] while Bannerman,[48] Neumann,[49] Ogilvie-Grant,[50] van Someren,[51] Granvik,[52] and Zedlitz [53] have all recorded new data and made corrections where necessary. I have read all these and other contributions and have carefully studied about 100 specimens of all the forms of the species. As a result I have come to the conclusion that while there is an unusual degree of variation shown in all the races, yet on the whole the geographic variations are greater than (although often rather obscured by) the individual ones, and that the arrangement followed by Sclater [54] is correct.

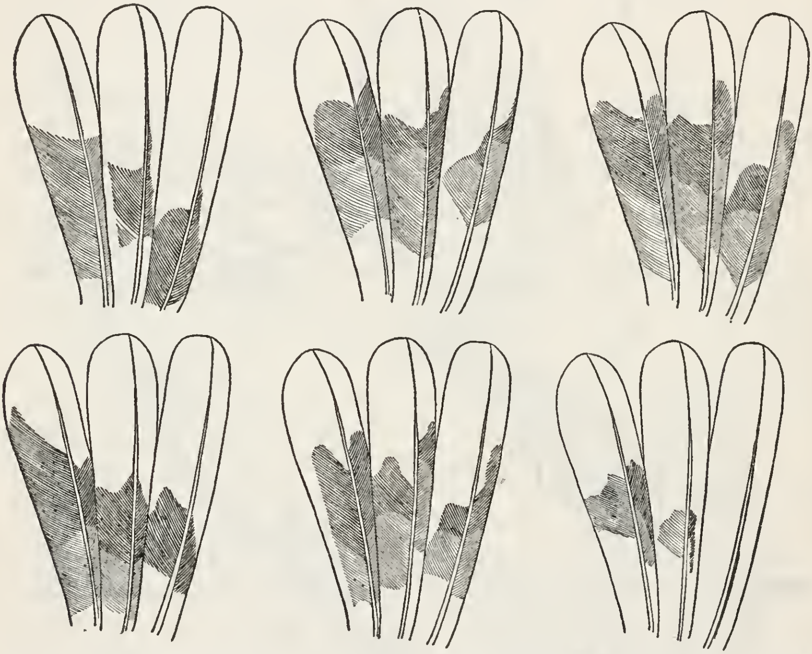

FIGURE 7.—Outermost rectrices of five individuals of *Oriolus monacha permistus* showing variation, with a figure (lower right) of the same feathers of *O. m. monacha* for comparison.

The enormous variability of the rectricial pattern is shown in the accompanying figures of the three outermost rectrices of five adult males from southern Shoa (fig. 7). For purposes of comparison the pattern of these feathers in an adult male of the nominate form is included, and is easily distinguished by the relatively small amount of black.

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[47] Ibis, 1923, pp. 75–81.

[48] Rev. Zool. Africaine, vol. 9, pp. 269–272, 1921.

[49] Journ. für Orn., 1905, pp. 232–236.

[50] Ibis, 1913, pp. 559–562.

[51] Nov. Zool., vol. 29, pp. 126–127, 1922.

[52] Journ. für Orn., 1923, Sonderheft, pp. 147–149.

[53] Journ. für Orn., 1916, pp. 1–4.

[54] Systema avium Æthiopicarum, pt. 2, p. 648, 1930.

There is still much to be learned of the ranges of the races of this bird. The accompanying map (fig. 6) shows them as far as I have been able to make them out on the basis of material examined and of published records. The large gaps on the map, such as those in northern Kenya Colony and in southeastern Gallaland, are probably inhabited by intergrades, but definite data are needed to determine this.

The most noteworthy result of my study of this species is that I find no good way of distinguishing *reichenowi* from *rolleti*. Thus, the latter is supposed to occur in the lower valleys of extreme southern Shoa, whence Mearns obtained a series at Gardula, Bodessa, and Turturo. However, all 12 of the specimens from those localities agree very closely with a series of *reichenowi* from southern Somaliland, Lamu, Taveta, and Changamwe. Erlanger[55] records *rolleti* (since separated as *reichenowi*) from Kismayu, the Bardera-Umfudu, and Daua regions in Somaliland, while the birds he obtained in Arussi and Ennia Gallaland and in Djamdjam he refers to *meneliki* (=*permistus* or *monacha*).

The birds from Gardula, Bodessa, and Turturo are probably the same form as those identified as *rolleti* by Neumann.[56] I have considered his suggestion that *rolleti* occurs in the lowlands of southwestern Ethiopia, while *permistus* is found higher up in the mountains near by. I have seen more material of *reichenowi* than of *rolleti* but can not decide between them as to which form the southern Shoan birds should be referred, and this has led to a general consideration of the characters of the two. Unfortunately, no one has made any direct, detailed comparisons of the two; their geographic positions seemed to render that unnecessary. According to Meinertzhagen,[57] *reichenowi* is based "on smaller size and a further extension of the black on to the back than is usual in *rolleti*." Zedlitz gives wings as 125–132 mm. Meinertzhagen gives the wing length of *rolleti* as varying from 124 to 144 mm. Stoneham,[58] however, writes that *rolleti* (from southern Ethiopia, the Sudan, and the Northern Chua Province of Uganda) has wing measurements of from 112 to 135 mm (average, 126 mm). In other words, the extreme measurements for *rolleti* are 112 to 144 mm. All the specimens I have seen of *reichenowi* have wings of from 121 to 132 mm in length. I have seen no birds less than 121 mm, although van Someren[59] writes that *reichenowi* measures from 115 to 125 mm in this regard, thereby making the extremes for this race 115 to 132 mm, completely within the range of variation of *rolleti*.

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[55] Journ. für Orn., 1907, pp. 1–2.

[56] Journ. für Orn., 1905, p. 234.

[57] Ibis, 1923, pp. 76–78.

[58] Bull. Brit. Orn. Club, vol. 45, pp. 78–79, 1925.

[59] Nov. Zool., vol. 29, p. 127, 1922.

The only character that I find by which the southern Shoan birds differ from typical *reichenowi* is in the color of the rump, which is brighter yellow, less greenish in *rolleti*, more greenish, more like the back in *reichenowi*, but even this is variable. For the present, I recognize the two races on the basis of this character, but its constancy remains to be established.

The eastern extension of the range of *permistus* as shown in the map is based on the present two examples from the Hawash River. These are much nearer to *permistus* than to *monacha.* Otherwise the subspecies appears to be known (east of the Abaya Lakes) only from Erlanger's Djamdjam, Arussi- and Ennia-Gallaland records, which are somewhat uncertain to me, as I have not seen the specimens in question.

In the region traversed by the Frick expedition four forms of the black-headed oriole occur. They may be identified as follows: The typical race is distinguished by the fact that the outer rectrices have little or no black on them; all the others have considerable black areas (in adults) on these feathers. The forms *permistus* and

TABLE 9.—*Measurements of 25 specimens of* Oriolus monacha *from Ethiopia*

O. M. PERMISTUS

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Hawash River	Male	133.0	86.5	23.0	23.0
Cofali	do	138.0	102.0	24.0	23.0
Malke	do	135.0	94.5	22.5	19.5
Sidamo Province	do	138.0	90.0	24.0	23.5
Aletta	do	142.0	88.0		23.5
Do	do	139.0	93.5	24.0	24.0
Do	do	132.5	87.5	23.0	22.0
Do	do	136.0	93.0	24.0	23.0
Do	do	139.0	92.0	23.0	22.0
Hawash River	Female	131.0	81.5	24.0	20.5
Sidamo Province	do	131.5	90.5	25.0	24.0
Aletta	do	137.0	86.5	24.0	21.5
Do	do	136.0	91.0	25.0	21.0
Do	do	137.5	92.5	25.0	22.5

O. M. ROLLETI

		Mm	*Mm*	*Mm*	*Mm*
Gato River near Gardula	Male	132.5	89.0	22.5	22.0
Do	do	132.0	81.5	23.5	21.5
Do	do	124.0	79.5	23.5	22.5
Do	do	128.0	87.0	24.0	21.5
Do	do	124.0	77.0	23.0	22.0
Bodessa	do	123.0	79.5	23.0	23.0
Gato River near Gardula	Female	124.5	83.0	24.0	21.5
Do	do	123.5	76.0	22.0	21.5
Do	do	127.0	80.5	23.5	20.5
Do	do	130.0	85.0	23.5	21.5
Turturo	do	121.0	81.5	22.0	20.5

kikuyuensis may be told from *rolleti* on the basis of size, the two former being larger (wings, 132–147 mm), the latter smaller (wings, males, 115–132 mm). Of the larger two, *kikuyuensis* is darker, deeper greenish, less yellowish above than *permistus*, but it is not always easy to identify single specimens.

The series of *rolleti* average considerably lighter, more yellowish above, especially on the nape and rump, than *permistus*. Inasmuch as the two are found so close together in southern Shoa, I append in tabular form the measurements of the present series of both forms (table 9).

The subadult bird from Malke has a black bill but is otherwise similar to fully adult birds, except that there is no black in the tail. The dark areas in the outer rectrices are dark greenish olive becoming darker toward the terminal part (the dark areas cover approximately the basal two-thirds of the feathers).

One of the Aletta birds is somewhat abraded; all the other specimens of *permistus* collected are in fresh plumage.

According to Neumann,[60] *permistus* (as well as *monacha*) inhabits the highlands at altitudes of from 2,200 to 3,000 meters.

Besides the specimens collected, Mearns noted *permistus* as follows: Aletta, March 7–11, 1,000; Loco, March 13–15, 20 birds; Galana River, March 19–20, 6 seen; Black Lake Abaya, March 21–23, 6 noted.

The male and female taken on March 4 were stated by the collector to be a mated pair.

ORIOLUS MONACHA ROLLETI Salvadori

Figure 6

Oriolus rolleti Salvadori, Atti Soc. Ital. Sci. Nat. Milano, vol. 7, Riunione a Biella, p. 161, 1864: White Nile between lat. 4° and 5° N.

Specimens collected:

6 adult males, 4 adult females, Gato River near Gardula, Ethiopia, March 31–May 25, 1912.
1 immature female, Bodessa, Ethiopia, May 31, 1912.
1 adult female, Turturo, Ethiopia, June 15, 1912.

As already mentioned under the preceding form, there is some question as to whether these specimens are to be considered *reichenowi* or *rolleti*, and my reasons for their present disposition need not be repeated here.

The immature bird has the forehead and crown black, the feathers margined with yellow, giving these parts a mottled appearance. The chin and throat are yellow, narrowly streaked with black. There is no black, but only grayish greenish olive on the rectrices. The bird is in very fresh plumage.

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[60] Journ. für Orn., 1905, p. 234.

The exact time of the breeding season in southern Ethiopia does not seem to be known, but in Uganda van Someren[61] found a nest in February and caught a nestling in March.

Mearns observed this oriole as follows: Gato River near Gardula, March 29–May 17, 200; Anole village, May 18, 2 birds; Kormali village, May 19, 4 seen; Bodessa, May 19–June 3, 20; Sagon River, June 3–6, 10 seen; Tertale, June 7–12, 4 birds; El Ade, June 12–13, 2 noted; Mar Mora, June 14–15, 6 seen; Turturo, June 15–17, 10 birds; Wobok, June 18, 4 seen; Saru, June 19, 2 noted; Yebo, June 20, 2 birds noted.

ORIOLUS MONACHA KIKUYUENSIS van Someren

FIGURE 6

Oriolus larvatus kikuyuensis VAN SOMEREN, Nov. Zool., vol. 29, p. 127, 1922: Nairobi, Kenya Colony.

SPECIMENS COLLECTED:

1 male, Tharaka district, Kenya Colony, August 13, 1912.
1 female, junction of Tana and Thika Rivers, Kenya Colony, August 25, 1912.
1 male, Athi River near Juja Farm, Kenya Colony, August 30, 1912.

As shown by Stoneham[62] the diagnosis of *kikuyuensis* given by van Someren was based merely on wing measurements, but this character is not so constant as the darker dorsal coloration, particularly of the head and upper back, of *kikuyuensis* as contrasted with the paler, more yellowish green *rolleti* and *reichenowi*.

Sclater[63] does not include the north shore of Lake Victoria in the range of this form, but several authors have considered birds from Kampala, Entebbe, Jinja, etc., as *kikuyuensis*, and a specimen from Kigomma (near Kampala) examined by me is referable to the present race.

The Tana River specimen is well advanced in molt; the other two birds are in good, fresh plumage.

Family CORVIDAE, Crows

CORVUS ALBUS P. L. S. Müller

PLATE 2

Corvus albus P. L. S. MÜLLER, Natursystem, Suppl., p. 85, 1776: Senegal.

SPECIMENS COLLECTED:

3 unsexed adults, above Gada Bourea, Ethiopia, December 26, 1911.
7 adult males, 1 adult female, Adis Abeba, Ethiopia, January 8–12, 1912.
1 immature male, Alaltu, Ethiopia, January 17, 1912.
1 (immature?) male, 1 (immature?) female, Arussi Plateau, Ethiopia, February 15, 1912.

The black and white crow is widely distributed over the whole of the Ethiopian region, including Madagascar and its surrounding islands. In all this enormous range it has produced no valid geographic races, a fact that indicates the wide range of ecological tolerance of the species. Many investigators have assembled series from all parts of Africa and have found no constant differences between birds from different areas. Merely to satisfy myself on this point I have examined some 50 specimens from the following localities—Ethiopia, Sudan, Kenya Colony, Uganda, Tanganyika Territory, Belgian Congo, South Africa, Madagascar, Aldabra Island, and Assumption Island, and my results confirm those of others as given above.

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[61] Ibis, 1916, pp. 398–399.

[62] Bull. Brit. Orn. Club, vol. 45, pp. 78–79, 1925.

[63] Systema avium Æthiopicarum, pt. 2, p. 648, 1930.

In northeastern Africa some rather puzzling plumage variations occasionally occur. Kleinschmidt[64] has delved into the question of the so-called *Corvus phaeocephalus* and has come to the conclusion that the type of this form is merely a faded (brown instead of black) specimen of *albus*. On Plate 3 he figures a specimen that differs from typical *albus* in having broad black shaft marks on the white feathers of the upper back, breast, and upper part of the abdomen. This bird he calls "Corvus . . .?" On Plate 4 (fig. 3) he shows a bird in which the feathers of the upper back, breast, and anterior part of the belly are dusky brownish or fuscous, edged with whitish, while in normal birds these feathers are pure white. In the present series are two birds that match these two. They were recorded by Mearns as a mated pair killed by the same shot at Arussi Plateau, on February 15, although on the labels he has written "imm." (= immature) in each case. The male approximates the appearance of the bird in Plate 3 of Kleinschmidt's paper. It has the nape and the upper back covered with blackish feathers laterally margined with white, and the breast and upper abdomen fuscous-black, each feather very broadly margined with white, giving the region a predominantly white appearance, heavily marked with blackish. In other words, it agrees with the plate except that the nape and upper back are less whitish. The female lacks the white on the nape and upper back, each feather being edged with brownish and narrowly margined externally with white. The feathers of the breast and upper abdomen are likewise black margined with brown and narrowly edged with white, giving this bird an appearance very like Plate 4, Figure 3, of Kleinschmidt's work, except that the head is black and not brown.

The immature male from Alaltu, on the other hand, agrees with the Arussi male on the breast and abdomen, and with the Arussi female on the color of the upperparts. None of these three are normal plumages, because of immaturity. Young birds are browner than adults but do not have the white areas streaked with dark fuscous as in these instances. Thus, a young male examined (from the Belgian Congo) has the chin, throat, and lower abdomen brownish mixed with black (the brown feathers being old, the black ones new), but it has the upper back, the breast, and the upper abdomen pure white.

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[64] Journ. für Orn., 1906, pp. 90–99, pls. 2–4.

Of all the attempted explanations, the most likely one appears to be that these unusual birds are either melanistic or that they are hybrids between *Corvus albus* and *Corvus corax edithae.* Of the two possibilities, I incline to the latter, because such birds have been found only in regions where the two species occur together. Kleinschmidt, on the other hand, considers the former the more probable. If he is correct, it is strange that no other area inhabited by *Corvus albus* has produced such specimens, and it would be just as logical to call them somewhat albinistic examples of *Corvus corax edithae* or to assume that *edithae* is a phylogenetic offshoot of *albus* (!) and that these peculiar individuals are atavistic in nature. Inasmuch as Meinertzhagen [65] and Kleinschmidt both agree that *edithae* is a race of *Corvus corax* and *albus* a distinct species, an attempt to explain these aberrant birds on the basis of atavism would involve considering *albus* the parent stock from which *corax* and its races evolved, and this I am sure neither would care to do.

The fact that *Corvus albus* is an indivisible specific aggregate throughout its range is due partly to its wide range of individual variation. The size characters, being the easiest to record in writing, may be used as an example. The wing length of adult birds (the sexes are alike) varies from 295 to 382 mm, the tail from 179 to 212 mm; the culmen from 51 to 64 mm, the tarsus from 56 to 67 mm. When we consider that in the matter of wing length the variational range is more than 25 per cent of the total measurement, and that in most birds the variations are usually under 10 per cent of the total size, the case becomes all the more striking.

Von Heuglin found this crow to be generally in northeastern Africa, usually in pairs, but often in small flocks during the nonbreeding season. Neumann [66] found it chiefly in the high inland plateau of Shoa at altitudes of from 2,500 to 3,000 meters (8,200 to 9,800 feet), in distinction to its predilection for lower, warmer regions in equatorial East Africa. However, the bird occurs in Somaliland (although not listed by Zedlitz in his paper on that region [67]), Eritrea, and even in the Dahlak Islands, so it is by no means restricted to the highlands in northeastern Africa. The only regions where it does not occur are dense forest areas. Inasmuch as most of the highlands of equatorial East Africa are cut off by forest belts from the surrounding lowlands, it may be that the crows are more restricted altitudinally there than in Ethiopia, where the highlands are not ecologically isolated, and this may account for Neumann's comments. It only remains to be stated that Mearns met with this bird rather seldom in the districts he traversed. On the journey up by train from Djibouti he saw none until he reached the high plateau above Gada Bourca. "Here," he says, "they were fairly common, often soaring high with the vultures, the white scapula glistening in the sun. They are very tame. At one spot I shot three successively from a flock of eleven and still they remained." In Shoa Mearns recorded only a few at Aletta, March 7–13, other than the ones collected. He did not see the species in northern Kenya Colony, and Lönnberg[68] found that it "did not seem to occur on the steppe or in the thornbush-country north of Guaso Nyiro."

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[65] Nov. Zool., vol. 33, p. 106, 1926.

[66] Journ. für Orn., 1905, p. 230.

[67] Journ. für Orn., 1915, pp. 1–69.

CORVUS CAPENSIS CAPENSIS Lichtenstein

Corvus capensis Lichtenstein, Verzeichniss der Doubletten des zoologischen Museums . . . zu Berlin, etc., p. 20, 1823: Cape of Good Hope.

Specimens collected:

1 male, 1 female, Adis Abeba, Ethiopia, January 12, 1912.
1 male, 1 female, Alaltu, Ethiopia, January 15, 1912.
1 male, 1 female, camp west of Saleish, Ethiopia, January 18, 1912.
1 male, Arussi Plateau, 9,000 feet (2,700 meters), Ethiopia, February 20, 1912.

This crow occurs from South Africa north to Angola and through eastern Africa to the Nile Valley in the Sudan, to Ethiopia, British Somaliland, Eritrea, and the Red Sea Province of the Sudan. It is very scarce and local in Tanganyika Territory and is unknown in the coastal belt of Kenya Colony and in Italian Somaliland. Two races have been differentiated on the basis of size. The typical form is the larger of the two, having a wing length of from 320 to 390 mm, the average being about 360 mm. It inhabits South Africa, the highlands of Angola, and the highlands of northeastern Africa (Ethiopia and adjacent parts of Bogosland). The smaller form, *kordofanensis* Laubmann (*C. capensis minor* auct.), has a wing length of from 300 to 340 mm, the average being about 315 mm. This form occurs in the lowlands of Angola, in Rhodesia, Mozambique, Tanganyika Territory, Kenya Colony, the Sudan, and British Somaliland, but appears to be unrecorded from Uganda although obtained near by in the Kavirondo country and on the east slopes of Mount Elgon.

The present series has the measurements given in table 10.

Although large birds only are found in Ethiopia, the South African birds are more variable and include not only the variational range of the Ethiopian specimens, but also many smaller individuals. The figures given by Meinertzhagen[69] for birds from South Africa

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[68] Kongl. Svenska Vet.-Akad. Handl., 1911, p. 93.
[69] Nov. Zool., vol. 33, p. 91, 1926.

TABLE 10.—*Measurements of seven specimens of* Corvus capensis capensis *from Ethiopia*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Adis Abeba	Male	352.0	193.0	64.0	75.0
Alaltu	do	350.0	188.0	62.5	71.5
West of Saleish	do	390.0	204.0	62.0	76.5
Arussi Plateau	do	358.0	194.0	61.0	72.0
Adis Abeba	Female	355.0	183.0	58.0	72.0
Alaltu	do	359.0	193.0	58.0	73.0
West of Saleish	do	359.0	180.0	60.0	75.0

are 318 to 380 mm. It looks as if both forms occur in the latter country, the larger form probably in the highlands, the smaller one lower down. This then, if true, would necessitate an examination of Lichtenstein's type to see which race really is *capensis*, a matter that I am not able to follow up.

With wear the feathers become somewhat bronzy in appearance and the purplish-blue sheen becomes less noticeable.

But little has been recorded of the habits of this bird in Ethiopia. The breeding season appears to be during the northern spring if not earlier. In Eritrea Zedlitz [70] found *kordofanensis* breeding in summer. Mearns found mated pairs in January and, in fact, noted that the female of the pair shot on January 18 near Saleish was a laying bird. The eggs of this species are rather remarkable for crows in that the predominant color is pink and not green.

CORVUS CORAX EDITHAE Phillips

Corvus edithae PHILLIPS, Bull. Brit. Orn. Club, vol. 4, p. 36, 1895: Somaliland (Hainwaina Plain).

SPECIMENS COLLECTED:

1 male, Yebo, Ethiopia, June 21, 1912.
3 males, 1 female, Chaffa, Ethiopia, June 25, 1912.
4 males, 2 females, Hor, latitude 3°19′ N., Kenya Colony, June 26–30, 1912.
1 male, 1 female, south end of Lake Rudolf, Kenya Colony, July 7, 1912.

Soft parts: Iris brown; bill and feet black.

I follow Meinertzhagen [71] in considering *edithae* as a race of *Corvus corax*. It is very similar to *Corvus corax ruficollis* but smaller, with a shorter wing tip and a slenderer and shorter bill. Kleinschmidt [72] has given a detailed account of the plumage variations of this raven, and therefore only a few brief notes need be presented here. The bases of the feathers of the breast are white in *edithae*, while in *ruficollis* they are dusky, but in the former the purity of the white color increases with age, although even in young birds it is definitely whitish.

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[70] Journ. für Orn., 1911, p. 4.

[71] Nov. Zool., vol. 33, p. 106, 1926.

[72] Journ. für Orn., 1906, pp. 87–90.

Young birds have the entire head and underparts, as well as the upper back, rusty light seal brown instead of black, with a deep blue sheen as in adults. Seven of the present 13 specimens are molting from the brown to the black plumage. Kleinschmidt found that birds molting the remiges were collected from as early as January 16 to as late as July 26. It is therefore in keeping with his observations to find that the present series, taken in June and July, are likewise in molt.

The size variations are considerable and are shown in table 11.

The measurements given by Kleinschmidt indicate that the western birds (Lake Rudolf region) have much shorter tails than do typical *edithae* (from Somaliland and southeastern Ethiopia), the caudal measurements given for the latter group ranging from 185 to 205 mm in the males and 185 to 195 mm in the females. I have seen four typical *edithae* and find them to have tails measuring 163, 170, 175, and 179 mm, respectively, so the two groups can not be separated nomenclaturally.

This bird occurs in British Somaliland, south through the Hawash district of Ethiopia, Arussi-Gallaland, and Italian Somaliland to the Lake Rudolf country in northern Kenya Colony and the immediately adjacent parts of extreme southern Shoa (Yebo and Chaffa). It does not appear to have been recorded previously from southern Shoa and, for that matter, has been taken but once before on Lake Rudolf.

Mearns made the following entries of this crow in his notebooks: Yebo, June 19, 4 seen; Karsa Barecha, June 21, 0 noted. Malata, June 22, 4 birds; Chaffa villages, June 23–25, 60; Hor, June 26–30, 1,000

TABLE 11.—*Measurements of 13 specimens of* Corvus corax edithae

Locality	Sex	Wing	Tail	Culmen	Tarsus
ETHIOPIA:		*Mm*	*Mm*	*Mm*	*Mm.*
Yebo	Male [1]	338.0	165.0	48.0	55.0
Chaffa	Male	347.0	165.0	49.0	58.0
Do	do	346.0	174.0	49.0	58.0
Do	do	347.0	164.0	50.0	57.5
KENYA COLONY:					
Hor	Male [1]	358.0	162.0	50.0	59.0
Do	Male	313.0	158.0	51.0	59.0
Do	do	327.0	173.0	51.0	54.5
Do	do	352.0	180.0	52.0	57.0
Lake Rudolf	do	346.0	172.0	50.0	56.0
ETHIOPIA: Chaffa	Female [1]	335.0	161.0	49.5	56.0
KENYA COLONY:					
Hor	Female	320.0	173.0	46.0	55.5
Do	do	290.0	164.0	48.0	58.0
Lake Rudolf	do	351.0	180.0	52.0	61.5

[1] Molting.

seen; Dry River south of Hor, July 1–2, 500; Dussia, July 3–4, 500 birds; Lake Rudolf, July 5–9, 1,200; southeast of Lake Rudolf, July 10–12, 600 birds; Indunumara Mountains, July 13–14, 400; Endoto Mountains, July 14–18, 200; Er-re-re, July 25, 100; Le-se-dun, July 26, 100; Malele and district to the south for 18 miles, July 27–28, 625; Lekiundu River, August 8, 40 birds seen. Unfortunately, no birds were collected south of the south end of Lake Rudolf, and it is therefore impossible to be sure of the identity of the birds from the Indunumara Mountains and southward. The species has not been recorded definitely from the latter group of localities.

CORVULTUR ALBICOLLIS (Latham)

Corvus albicollis Latham, Index ornithologicus, vol. 1, p. 151, 1790: Africa; restricted type locality Cape Town (*apud* Meinertzhagen, Nov. Zool., vol. 33, p. 96, 1926).

Although no specimens of the white-necked raven were collected, and while Mearns did not particularly differentiate between it and *crassirostris* in his field notes, it has been thought entirely possible to identify his records and incorporate them in this report.

On July 21–24, at the plains south of the Endoto Mountains, Kenya Colony, Mearns noted two of these birds, and on August 10, at Meru near Mount Kenya, he saw 100. Inasmuch as his last records for *crassirostris* were from Gato River near Gardula, March 29–May 17, and inasmuch as *albicollis* is the only species known to occur around Mount Kenya, it seems certain that the above records refer to *albicollis*.

CORVULTUR CRASSIROSTRIS (Rüppell)

Plate 2

Corvus crassirostris Rüppell, Neue Wirbelthiere zu der Fauna von Abyssinien gehörig, Vögel, p. 19, pl. 8, 1835–40: Abyssinia.

Specimens collected:

- 4 males, 3 females, Adis Abeba, Ethiopia, December 27, 1911–January 9, 1912.
- 1 female, "Lake Trip" (=near Lake Stefanie), Ethiopia, March 9, 1912 (C. Frick coll.).
- 1 unsexed, Gardula, Ethiopia, April 20, 1912.

The giant thick-billed raven is found in the highlands of Shoa and Arussi-Gallaland, and while commonest at moderate elevations up to 10,000 feet (3,000 meters) it also occurs in the lower areas of adjacent parts of British Somaliland and of the Sudan. Neumann[73] writes that the region about Lake Rudolf (Rendile and Turkana districts) forms the boundary south of which *Corvultur crassirostris* does not occur and north of which *Corvultur albicollis* is unknown.

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[73] Journ. für Orn., 1905, p. 231.

The former has been recorded from Uganda by two writers, but in both cases the birds are of the latter species. Ogilvie-Grant[74] erroneously reported a bird from Mulema as *crassirostris*, a mistake that was promptly corrected by Shelley.[75] Van Someren[76] reported one from Toro, Uganda. Meinertzhagen,[77] however, lists *albicollis* from Toro and *crassirostris* only from Ethiopia, British Somaliland, and the Sudan. Inasmuch as van Someren's collection is partly at Tring, where Meinertzhagen worked, it appears that the latter's record of *albicollis* and the former's of *crassirostris* may be based on one and the same bird, and that it really may be *albicollis*.

Kleinschmidt[78] considers these two forms conspecific, and accordingly calls the present one *C. albicollis crassirostris*. While it is true that the two are geographical representatives, they are very distinct from each other, and have not been found to intergrade at all, so it is better to treat them as specific entities.

The present series are in worn plumage, and two of the birds are actually in molt. As these two represent the extreme dates of the series, it may be inferred that the molting season is a prolonged one. The size variations of this raven are indicated in table 12.

Von Heuglin[79] found this bird from 3,300 feet (1,000 meters) up to the snow line. In the Wogara region he found it breeding in March. Kleinschmidt, quoting Hilgert, records a nest with two young birds at Gara Mulata near Harrar on March 20. The fact that some of the series collected by the Frick expedition were molting when shot in December indicates that the breeding season is less restricted than these two nesting dates might suggest.

In his field notes written at Adis Abeba, December 26 to January 7, Mearns records this bird as "abundant. None seen before reaching this place. A dozen may be seen feeding with kites and vultures in the hotel grounds. It carries its neck extended in flight, which, with its enormous bill, gives it somewhat the appearance of a hornbill. Its note is a deep, very rough croak."

Apparently Mearns did not see this raven between the time he left the plateau of Adis Abeba and his arrival in the lake district of southern Shoa. From March 7 to 13 at Aletta he noted 200 of them; at Loco and Gidabo River, March 13–17, 100 more were seen. The species became markedly less numerous south of Gidabo River, as during a period over six weeks (March 29–May 17) at Gato River near Gardula, only 3 individuals were observed.

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[74] Ibis, 1905, p. 201.

[75] The birds of Africa, etc., vol. 5, pt. 1, p. 139, 1905.

[76] Ibis, 1916, p. 397; and Nov. Zool., vol. 29, p. 126, 1922.

[77] Nov. Zool., vol. 33, pp. 96–97, 1926.

[78] Journ. für Orn., 1906, p. 82.

[79] Ornithologie Nordost-Afrika's, etc., vol. 1, p. 507, 1869.

TABLE 12.—*Measurements of nine specimens of* Corvultur crassirostris *from Ethiopia*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Adis Abeba	Male	452.0	240.0	87.0	82.0
Do	do	455.0	240.0	86.0	78.0
Do	do	438.0	229.0	84.0	81.0
Do	do	430.0	241.0	87.0	80.0
Do	Female	424.0	229.0		80.0
Do	do	430.0	228.0	86.0	78.0
Do	do	445.0	238.0	87.5	78.0
Near Lake Stefanie	do	419.0	222.0	81.0	76.0
Gardula		423.0	244.0	86.0	82.0

RHINOCORAX RHIPIDURUS (Hartert)

PLATE 3

Corvus rhipidurus HARTERT, Bull. Brit. Orn. Club, vol. 39, p. 21, 1918: New name for *Corvus affinis* Rüppell.

SPECIMENS COLLECTED:

6 males, 3 females, Dire Daoua, Ethiopia, December 1–10, 1911.
1 male, about Gada Bourca, Ethiopia, December 26, 1911.
1 male, 1 female, Adis Abeba, Ethiopia, January 12, 1912.
1 male, Gidabo River, Ethiopia, March 16, 1912.
1 male, Gato River near Gardula, Ethiopia, May 15, 1912.
1 male, 1 female, Bodessa, Ethiopia, May 22, 1912.
1 male, Lake Rudolf, Kenya Colony, July 6, 1912.
1 male, 1 female, Endoto Mountains, south, Kenya Colony, July 23, 1912.

The fan-tailed raven occurs throughout British Somaliland, Ethiopia, Eritrea, the Red Sea, Sennar, White Nile and Mongalla Provinces of the Sudan, south to extreme northwestern Uganda, and in Kenya Colony to the Northern Guaso Nyiro and Lekiundu Rivers, Lake Baringo, and Mount Elgon (erroneously reported from Kavirondo). It also occurs in western Asia from Jericho to Aden, and in upper Egypt in palearctic Africa. Its altitudinal range is very considerable, fully as great as that of the species of *Corvultur* (which, in a way, it serves to connect with the genus *Corvus*), the limits being sea level and about 12,000 feet (3,600 meters) above the sea. Thus, Lort Phillips found it common at the coast at Berbera and also on the highest elevations of the Goolis Mountains in British Somaliland, and von Heuglin recorded it up to 12,000 feet in the Ethiopian mountains. Blanford[80] writes that on the Eritrean-Ethiopian border it abounds everywhere on the highlands and in the subtropical zone and it descends almost to the sea-level at times. When he first visited Komayli, at the base of the hills in January, the only crow to be seen was *C. scapulatus* (=*albus*), but in February, after some rain had fallen, *C. affinis* (=*rhipidurus*) abounded. In the former instance he first met with this species at about 3,000 feet near Mayen. In May it had retreated once more to its former range, and the white-breasted crow alone was to be seen in the tropical region. In ascending to the Bogos country it first appeared on the Lebka at about 12,000 feet above the sea, at Ain.

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[80] Observations on the geology and zoology of Abyssinia, etc., p. 393, 1870.

Mearns did not find this raven in the coastlands at Djibouti in November, "but a few stations up on the railway they appeared around the native villages in company with . . . vultures, and have been common everywhere. Here at Adis Abeba they are fairly numerous." Mearns made no note of this bird in the Arussi highlands, but in the lake country of southern Shoa he observed it frequently in large numbers. Thus, of a male collected at Gidabo River, on March 16, he writes, "this is the first one seen since we passed Sirre."

The present series indicates that the range of individual variation is very great in this as in so many of the crows. The measurements given in table 13 show this very well.

TABLE 13.—*Measurements of 19 specimens of* Rhinocorax rhipidurus

Locality	Sex	Wing	Tail	Culmen	Tarsus
ETHIOPIA:		*Mm*	*Mm*	*Mm*	*Mm*
Dire Daoua	Male	377.0	161.0	55.0	66.0
Do	do	377.0	163.0	52.0	66.0
Do	do	353.0	146.0	49.5	61.0
Do	do	357.0	149.0	50.0	61.0
Do	do	370.0	161.0	53.0	69.0
Do	do	360.0	152.0	54.0	70.0
Above Gada Bourca	do	343.0	163.0	51.0	66.0
Adis Abeba	do	415.0	173.0	55.0	71.0
Gidabo River	do	408.0	167.0	55.0	73.0
Gato River	do	410.0	175.0	54.0	68.0
Bodessa	do	405.0	179.0	56.0	63.0
KENYA COLONY:					
Lake Rudolf	do	389.0	167.0	53.0	71.0
Endoto Mountains	do	378.0	155.0	53.0	66.0
ETHIOPIA:					
Dire Daoua	Female	356.0	152.5	49.0	67.0
Do	do	348.0	153.0	52.0	65.0
Do	do	349.0	154.0	50.0	63.0
Adis Abeba	do	394.0	170.0	54.0	65.0
Bodessa	do	383.0	153.5	53.0	67.0
KENYA COLONY: Endoto Mountains	do	373.0	157.0	50.0	64.0

The condition of the plumage of these birds, collected over a period of eight months, shows the following facts: Molting birds were taken in December and July; the birds collected from January to May (and to July) were in fresh plumage; birds in worn feather were taken in December.

According to Neumann[81] the breeding season in Shoa is in February. Meinertzhagen[82] writes that the Corvidae have one annual molt, which takes place late in summer and in autumn in the Northern Hemisphere; in other words, the postnuptial molt is the only complete one. It would follow, then, if Neumann is correct in saying that the breeding season is in February, that molting birds should be found only after February. Yet one of the December specimens is molting its remiges, a sure sign of a complete molt. The inference is that there may be two breeding seasons in Ethiopia, a condition by no means uncommon farther south in Kenya Colony.

Besides the specimens collected, Mearns noted this bird almost daily during his journey from southern Shoa to the Lekiundu River. The following are the definite entries in his diary: Gidabo River, March 15–17, 20 birds seen; Abaya Lakes, March 18–26, 180; between the Abaya Lakes and Gardula, March 26-29, 25 noted; Gato River near Gardula, March 29–May 17, 1000; Anole and Kormali villages, May 17–18, 100; Bodessa, May 19–June 3, 200; Sagon River, June 3–6, 100; Tertale, June 7–12, 50 seen; El Ade, June 12–13, 25 seen; Mar Mora, June 14, 20 birds; Turturo, June 15–17, 40 noted; Wobok, June 18, 20 noted; near Saru, June 19, 4 seen; Lake Rudolf, July 5–10, 30 birds; southeast of Lake Rudolf, July 11–12, 8 observed; Indunumara Mountains, July 14–18, 4 birds; Endoto Mountains, July 19–24, 500; Er-re-re, July 25, 100; Le-se-dun, July 26, 100; Malele and country to the south for 40 miles, July 27–30, 1250 birds; Northern Guaso Nyiro River, July 31–August 3, 600 seen; Lekiundu River, August 4–8, 65 birds noted. He did not see it after he left the Lekiundu River, an experience in keeping with that of Lönnberg, who states[83] that he "did not see it south of Guaso Nyiro * * * and its occurrence there and not further is a good example of the zoogeographical importance of this river as a southern limit for many northeastern animals."

Family PARIDAE, Titmice

PARUS AFER FRICKI (Mearns)

Melaniparus afer fricki Mearns, Smithsonian Misc. Coll., vol. 61, no. 20, p. 5, 1913: Dire Daoua, Ethiopia.

Specimens collected: 1 male, 1 female, Dire Daoua, Ethiopia, December 6–9, 1911.

Sclater[84] considers *fricki* a synonym of *barakae;* Zedlitz[85] does not mention *fricki* in his discussion of the races of this titmouse;

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[81] Journ. für Orn., 1905, p. 231.
[82] Nov. Zool., vol. 33, p. 63, 1926.
[83] Kongl. Svenska Vet.-Akad. Handl., 1911, p. 93.
[84] Systema avium Æthiopicarum, pt. 2, p. 640, 1930.
[85] Journ. für Orn., 1916, pp. 80–82.

yet it seems to be a valid form. In the original description of this bird, Mearns characterized it as differing from *barakae* in having a larger black spot on the middle of the breast, "deep gull gray sides and flanks, with a broad buffy-white collar separating the dark colors of the sides and chest from the black of the throat, and a darker general coloration." I find that the size of the black breast spot is a variable character in *barakae*, some specimens having it as large as in *fricki*. Zedlitz mentions that a specimen from Dire Daoua and another from Daroli River have a very large black patch on the throat and breast, but suggests that this is merely a sign of old age. More material will have to be gotten together before it will be possible to say much about the constancy of this character, but *fricki* is definitely darker on the sides and flanks than *barakae*. Van Someren [86] lists birds from the Northern Guaso Nyiro as *fricki*, but in this I think he is mistaken as these birds should be *barakae*. The same is true of the specimens from Archers Post recorded by him more recently.[87]

In northeastern Africa there are three forms of this gray titmouse. They are:

1. *P. a. thruppi:* British and Italian Somaliland south to eastern Jubaland.
2. *P. a. fricki:* Northeastern Gallaland (the region about Dire Daoua and Harrar).
3. *P. a. barakae:* Kenya Colony from the Endoto and Indunumara Mountains to the Teita and Taveta district.

These three may be distinguished in the following way: *P. a. fricki* has the sides and flanks noticeably darker grayish than either of the others; *thruppi* has the inner margins of the remiges more buffy, less whitish, and the general tone of the abdomen also more buffy, than in *barakae*. Also, *barakae* has only a very narrow buffy whitish band bordering the black of the occiput; *fricki* and *thruppi* have a wider pale band on the nape.

The male specimen is the type. Both it and the female are in rather abraded plumage. Their dimensions are as follows: Male—wing, 65; tail, 46.5; culmen, 10.5; tarsus, 17.5 mm. Female—wing, 64; tail, 48.5; culmen, 10.5; tarsus, 17.5 mm.

The breeding season is probably late in March and early in April. Erlanger [88] shot birds with swollen gonads on March 19 and April 6 in southern Ginir and Gurraland and found fledged young (of *barakae*) at Kismayu in July.

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[86] Nov. Zool., vol. 29, p. 204, 1922.

[87] Journ. East Africa and Uganda Nat. Hist. Soc., no. 35, p. 66 (142), 1930.

[88] Journ. für Orn., 1907, p. 52.

PARUS AFER BARAKAE Jackson

Parus barakae Jackson, Ibis, 1899, p. 639: Njempa, near Lake Baringo, Kenya Colony.

Specimens collected:

1 male, Indunumara Mountains, Kenya Colony, July 13, 1912.
3 males, 2 females, Endoto Mountains, Kenya Colony, July 19–20, 1912.
3 males, Lekiundu River, Kenya Colony, August 6, 1912.

The characters and range of this form have been discussed under the preceding race. The specimens collected are all in somewhat worn condition but do not show signs of molt. Their dimensions are given in table 14.

Besides these specimens, Mearns noted this form on several occasions. The following records are extracted from his field books: Indunumara Mountains, July 14, 6 birds seen; Endoto Mountains, July 19–20, 10 noted; Northern Guaso Nyiro River, July 31–August 3, 10 seen; Lekiundu River, August 4–8, 40; Tharaka district, August 12, 6 birds observed.

Table 14.—*Measurements of nine specimens of* Parus afer barakae *from Kenya Colony*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Indunumara Mountains	Male	64.0	49.0	10.5	17.0
Endoto Mountains	do	61.0	45.0	10.0	17.0
Do	do	57.0	41.5	10.0	15.0
Do	do	68.0	50.0	10.0	17.0
Lekiundu River	do	65.0	48.0	10.5	17.0
Do	do	63.0	46.0	10.0	17.5
Do	do	66.0	49.0	10.5	18.0
Endoto Mountains	Female	62.0	44.5	10.0	17.0
Do	do	62.0	46.0	10.0	16.5

PARUS NIGER LACUUM Neumann

Figure 8

Parus niger lacuum Neumann, Orn. Monatsb., vol. 13, p. 77, 1905: Suksuki River, Lake Zwai, Ethiopia.

Specimens collected:

1 female, Hawash River, Ethiopia, February 10, 1912.
2 females, Serre, Ethiopia, February 13, 1912.
1 male, Loco, Ethiopia, March 15, 1912.

The arrangement of the subspecies of this black titmouse, as given by Sclater[89] is upheld by a small series studied in the present connection. I have examined specimens of four of the six forms—*niger*,

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[89] Systema avium Æthiopicarum, pt. 2, pp. 641–642, 1930.

insignis, *purpurascens*, and *lacuum*. However, the range of *lacuum* is not correctly stated by Sclater or by Neumann.[90] According to both of these writers, it is restricted to the southern Shoan lake region and the Omo district. The present specimens from Hawash River and Serre, however, are clearly referable to *lacuum* and not to the north Ethiopian race *leucomelas*, of which, unfortunately, I have not seen any material. The latter race is said to differ from *lacuum* only in being smaller. Neumann gives the wing length of *leucomelas* as 75 to 84 mm, that of *lacuum* as 85 to 95 mm. The female from Hawash River has a wing measuring 85 mm; the females from Serre, 86 and 88 mm, respectively. Furthermore, van Someren [91] states that his series of *lacuum* from Turkwell south to Kakamegos presents wing lengths of from 83 to 91 mm, slightly less than Neumann's figures and in better agreement with the present series. It appears that *leucomelas* occurs in Eritrea, Sennar, and the highlands of northern Ethiopia south to northern Shoa, but not to eastern Ethiopia, while *lacuum* occurs in the lower elevations of the Hawash valley, southwest (through Ennia-Gallaland) to southern Shoa, the Omo region, Lake Stefanie, and northwestern Uganda. I wonder whether van Someren's Kakamega birds are really *lacuum;* on geographic grounds they would seem to be *purpurascens*, the form occurring on Mount Elgon and across Uganda to the eastern Congo, southern Sudan, and to northern Cameroon.

In northeastern Africa three races of this bird occur, as follows:

1. *P. n. leucomelas:* According to Sclater, this form is found only in Eritrea, Sennar, and the northern highlands of Ethiopia. Lynes,[92] however, refers his Darfur birds to this race, and Bannerman and Bates [93] list two specimens of *leucomelas* from between Ibi and Takum, and from east of Bauchi, in Nigeria. I have seen no material from Darfur or Nigeria and assume that Sclater must have examined these birds and found them to belong to the race *purpurascens*.

2. *P. n. lacuum:* This form has been discussed above. Its range is from the middle stretches of the Hawash River to southern Shoa, the Omo region, and northwestern Uganda. It resembles *leucomelas* but is smaller.

3. *P. n. purpurascens:* Mount Elgon, across Uganda to Ruwenzori, the eastern Uelle district of the Belgian Congo, north to Mongalla and the Upper Nile provinces of the Anglo-Egyptian Sudan, thence west through the southern Sudan (north to Darfur) to

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[90] Journ. für Orn., 1906, p. 260.
[91] Nov. Zool., vol. 29, 1922, p. 205.
[92] Ibis, 1924, p. 719.
[93] Ibis, 1924, p. 250.

northern Cameroon and northern Nigeria. This race may be easily distinguished by the fact that it has the under wing coverts wholly white, whereas in the other two forms here under discussion these feathers are largely blackish, or at least as much black as white.

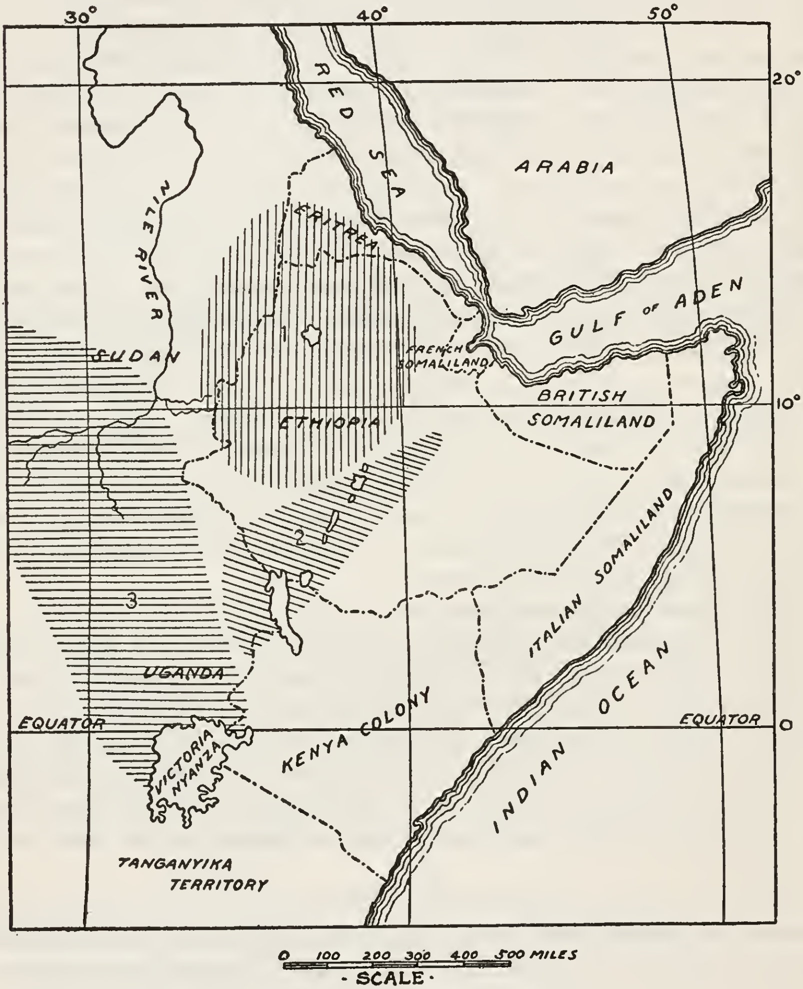
30°
40°
50°
20°
10°
0
RED SEA
ARABIA
NILE RIVER
ERITREA
GULF OF ADEN
SUDAN
FRENCH SOMALILAND
BRITISH SOMALILAND
ETHIOPIA
ITALIAN SOMALILAND
1
2
3
UGANDA
KENYA COLONY
OCEAN
INDIAN
EQUATOR
EQUATOR
VICTORIA NYANZA
TANGANYIKA TERRITORY
0 100 200 300 400 500 MILES
· SCALE ·

FIGURE 8.—Distribution of *Parus niger* in northeastern Africa.

1. P. n. leucomelas.
2. P. n. lacuum.
3. P. n. purpurascens.

From its nearest neighbor to the southwest, *insignis*, it differs in having a deeper, more purplish, less greenish, sheen to the feathers.

Von Heuglin[94] writes that this titmouse (race *leucomelas*) is a resident in the highlands of Beni-Amer and Bogosland, where it occurs at altitudes of from 3,000 to 8,000 feet, and also in the upper stretches of the Blue and White Niles (the latter region is, however, inhabited by *purpurascens*). Jesse[95] found it rather uncommon in Bogosland, and Zedlitz did not see it at all in southern Eritrea and northern Ethiopia. Neumann found that *lacuum* occurred up to about 7,300 feet in the mountains of southwestern Ethiopia.

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[94] Ornithologie Nordost-Afrika's, etc., vol. 1, p. 407, 1869.

The male taken at Loco on March 15 is in molting condition; the other three specimens are in fine, fresh plumage.

Mearns recorded seeing a few of these tits on the following occasions—North or Black Lake Abaya, March 18, 4 birds; Galana River, March 19–20, 10 seen; between the Abaya Lakes and Gardula, March 26–29, 2 individuals noted.

PARUS ALBIVENTRIS ALBIVENTRIS Shelley

Parus albiventris Shelley, Ibis, 1881, p. 116: Ugogo.

Specimens collected:

1 male, Tana River, Camp 6, Kenya Colony, August 21, 1912.
2 males, 1 female, Escarpment, Kenya Colony, September 4–6, 1912.

There are two races of this titmouse: The typical one, which occurs in the interior of Kenya Colony and northern Tanganyika Territory from Moroto and Ugogo, Kakoma, and Salanda, to Mount Lololokui in the north and to Mount Elgon on the west, and a smaller race, *curtus*, which occurs in the coastal districts of southern Kenya Colony, inland to Taveta. In the nominate form the wings measure 79 to 86 mm in the males, 77 to 83 mm in the females, while in *curtus* the wing length varies from 75 to 77 mm in the males and from 72 to 76 mm in the females. The three males listed above have wings of 80, 80, and 81 mm, respectively; the female, 77 mm. All are in fine, fresh plumage.

The nominate race appears not to have been taken in Uganda, but it is known from the Banso Mountains of Cameroon, rather a surprising distribution in view of the fact that most birds common to the Cameroon highlands and parts of East Africa are not infrequently found in Uganda.

Hinde[96] found it common in the "neighborhood of swamps and river-beds where there is some timber, such as mimosa, in proximity to the water. Breeds in April and November."

Granvik[97] found this bird common on the eastern slopes of Mount Elgon at an altitude of about 6,500 to 7,000 feet.

Besides the four birds taken, Mearns observed a few others of this species, as follows: Tana River, August 16–23, 18 birds seen; junction of Tana and Thika Rivers, August 23, 2 noted.

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[95] *Ex* Finsch, Trans. Zool. Soc. London, 1870, p. 238.
[96] Ibis, 1900, pp. 494–495.
[97] Journ. für Orn., 1923, Sonderheft, p. 227.

PARUS LEUCONOTUS Guérin

Parus leuconotus Guérin, Rev. Mag. Zool., 1843, p. 162: Abyssinia.

Specimens collected:

1 male, Adis Abeba, Ethiopia, January 8, 1912.
8 males, Arussi Plateau, 9,000 feet, Ethiopia, February 20–29, 1912.

The white-backed black titmouse occurs in the highlands of Ethiopia from Djimma, Djamdjam, Shoa, Arussi-Gallaland, and Harrar north through Tigre and Simien to Bogosland in southern Eritrea. Throughout this area it lives chiefly in the juniper and bamboo forests. Neumann[98] found it at altitudes of from 9,200 to 10,200 feet. Von Heuglin[99] writes that only once did he find this bird below 6,000 feet—at Mensa on the northern border of Ethiopia. He found it not infrequently in Semien, Wogara, Begemeder, the highlands of Gallaland, and Shoa, usually in pairs. He writes that its habits recall those of the European species *Parus major*. Blanford[1] found it to be not very common at Senafé and Adigrat. This observation is borne out by the fact that Jesse obtained but three specimens in Bogosland, and Zedlitz did not meet with it at all.

One of the males from the Arussi Plateau is probably immature. It has the light patch on the back heavily washed with brownish buff and is somewhat smaller than the other specimens. Reichenow[2] writes that these are the characters by which the young differ from the adult birds.

Taking only the eight adults into consideration, I give their size variations in table 15.

Table 15.—*Measurements of eight male specimens of* Parus leuconotus *from Ethiopia*

Locality	Wing	Tail	Culmen	Tarsus
	Mm	*Mm*	*Mm*	*Mm*
Adis Abeba	74.0	58.0	11.0	19.0
Arussi Plateau	82.0	60.5	13.0	19.0
Do	76.0	62.5	11.0	19.5
Do	78.5	60.0	11.0	19.0
Do	81.0	62.0	11.5	19.0
Do	78.0	59.0	11.5	19.0
Do	75.5	58.0	11.0	19.0
Do	78.0	58.5	11.5	20.0

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[98] Journ. für Orn., 1906, p. 261.
[99] Ornithologie Nordost-Afrika's, vol. 1, p. 408, 1869.
[1] Observations on the geology and zoology of Abyssinia, etc., p. 356, 1870.
[2] Die Vögel Afrikas, vol. 3, p. 513, 1905.

The bird from Adis Abeba and the majority of those from the Arussi Plateau were in molt when shot, the ecdysis being particularly noticeable in the rectrices. The immature bird was similarly in molting condition.

The only clue of which I know as to the breeding season of this bird is a note by Neumann[3] to the effect that a female, taken by him on December 27 at Abera in the Djamdjam district, had an egg in the oviduct. It may be that the reason Mearns happened to obtain only male specimens of this titmouse is that the females were out of sight, incubating their eggs during January and February.

ANTHOSCOPUS CAROLI ROTHSCHILDI Neumann

Anthoscopus rothschildi Neumann, Journ. für Orn., 1907, p. 597: Simba, Kenya Colony.

Specimens collected: 1 male, near Tana River east of Ithanga Hills, Kenya Colony, August 26, 1912.

This specimen agrees with the description of *rothschildi*, which form I have not otherwise seen. Van Someren[4] gives the wing length of a male as 55 mm, of a female as 52 mm. The present example is sexed as a male but has a wing measuring only 52.5 mm; it is in somewhat abraded plumage, but not enough to make more than a half a millimeter difference in the wing length.

The systematics of this little "cappoc-vogel" are in an unsatisfactory state, owing to the absence of adequate series in any collection. For example, Sclater[5] writes that *A. sharpei* is a synonym of *A. caroli sylviella*, while van Someren, who had seven specimens of the former, suggests that it is racially distinct from the latter.

Hellmayr[6] examined the type of *sharpei* and concluded it was not distinct from *sylviella*. Hartert[7] synonymizes the two with a query, adding that the identity of the two is still doubtful.

The present specimen appears to constitute the westernmost record for the race. According to Sclater, this subspecies occurs in the "eastern districts of Kenya Colony: Simba and Kitui." The distance between Kitui and the Tana River east of Ithanga Hills is not very great, however.

Since the above was written, van Someren[7a] has recorded this race from Simba, Kiu, Kitui, Fort Hall, and Thika.

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[3] Journ. für Orn., 1906, p. 261.

[4] Nov. Zool., vol. 29, p. 203, 1922.

[5] Systema avium Æthiopicarum, pt. 2, pt. 645, 1930.

[6] *In* Wytsman, Genera avium, pt. 18, p. 63, 1911.

[7] Nov. Zool., vol. 27, p. 441, 1920.

[7a] Nov. Zool., vol. 37, p. 359, 1932.

ANTHOSCOPUS MUSCULUS (Hartlaub)

Aegithalus musculus Hartlaub, Orn. Centralbl., 1882, p. 91: Lado; see Journ. für Orn., 1882, p. 236.

Specimens collected:

1 male, Tertale, Ethiopia, June 11, 1912.
1 female, Northern Guaso Nyiro River, Kenya Colony, August 1, 1912.
1 female, Lekiundu River, Kenya Colony, August 6, 1912.

This species occurs from the Upper White Nile east to the Hawash Valley and Somaliland, south through Kenya Colony to the Taveta district, in the semiarid thornbush steppe country only, not in the highlands of central and southwestern Kenya Colony.

Van Someren[8] writes that topotypical *musculus* differ from eastern specimens in being paler below, "less creamy white on the throat and chin, and much less deep buff on the abdomen." More recently[9] he writes that birds from Archers Post, Kenya Colony, "cannot be placed accurately without comparison with typical birds." Unfortunately, I have no western, typical material for comparison, but some of the eastern specimens seen have only a very pale buffy tinge on the abdomen, so it seems that there may not be any constant difference between them and typical *musculus*.

The three specimens obtained by the Frick expedition are in worn plumage. Their dimensions are as follows: Male—wing, 47; tail, 21.5; culmen, 8; tarsus, 13 mm. Females—wing, 46.5, 49.5; tail, 25.5, 28; culmen, 8, 8; tarsus, 12, 12 mm.

Lönnberg[10] shot a bird on February 27 at Njoro, north of the Northern Guaso Nyiro River, and found it to be in breeding condition.

This bird appears to be fairly widely distributed in Ethiopia, as Erlanger[11] obtained specimens at Gumbowerin, between Zeila and Djeldessa; at Tschoba, between Harrar and Adis Abeba; in Djamdjam; in Gurraland; in the Garre-Lewin district; and at Anole, between Bardera and Umfudu.

Van Someren[12] has recently described the birds of northern Kenya Colony under the name *A. m. guasso* (type locality, Archers Post), on the basis of smaller size and the absence of the olive tinge to the mantle. If *guasso* be valid (the material available for study does not indicate it, but my series is small), the present specimens would have to be referred to it.

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[8] Nov. Zool., vol. 29, p. 204, 1922.
[9] Journ. East Africa and Uganda Nat. Hist. Soc., no. 35, p. 66 (142), 1930.
[10] Kongl. Svenska Vet.-Akad. Handl., 1911, p. 120.
[11] Journ. für Orn., 1907, p. 53.
[12] Nov. Zool., vol. 37, p. 359, 1932.

Family TIMELIIDAE, Babbling Thrushes

TURDOIDES LEUCOPYGIA SMITHII (Sharpe)

FIGURE 9

Crateropus smithii SHARPE, Bull. Brit. Orn. Club, vol. 4, p. 41, 1895: Sheikh Hussein, Arussi-Gallaland.

SPECIMENS COLLECTED: 1 female, Moulu, Ethiopia, December 17, 1911.

Sclater [13] considers *lacuum* Neumann a synonym of *smithii*, but in this he is mistaken. *T. l. lacuum* has the chin and upper throat dark

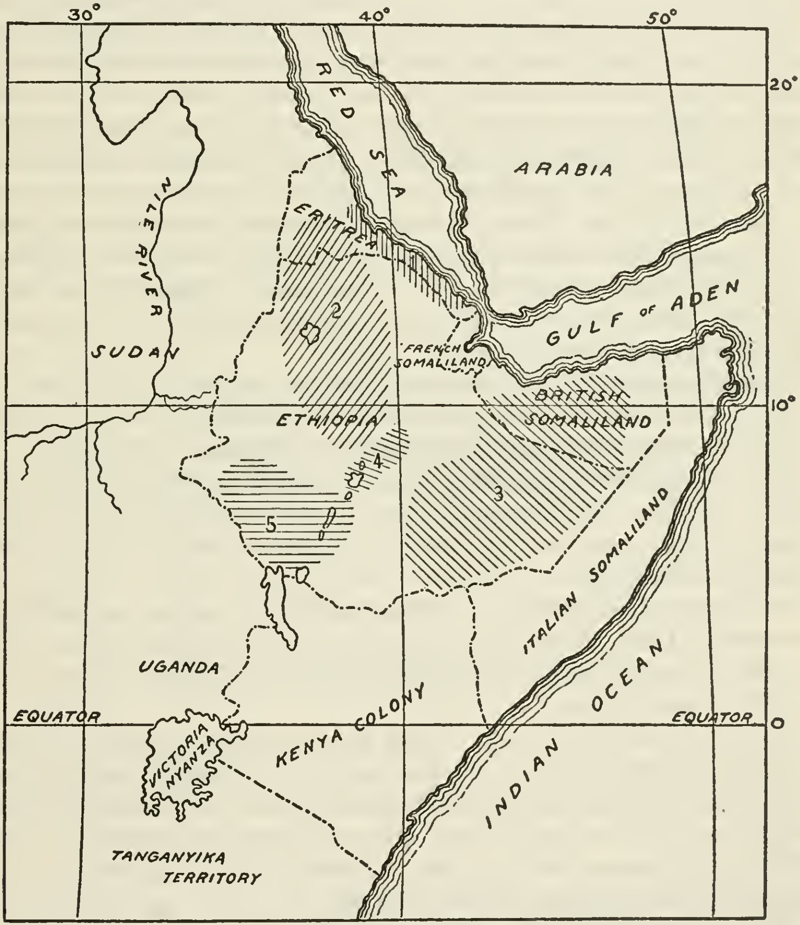
30°
40°
50°
20°
10°
0
RED SEA
ARABIA
NILE RIVER
ERITREA
2
GULF OF ADEN
SUDAN
FRENCH SOMALILAND
BRITISH SOMALILAND
ETHIOPIA
4
3
5
ITALIAN SOMALILAND
UGANDA
EQUATOR
EQUATOR
VICTORIA NYANZA
KENYA COLONY
INDIAN OCEAN
TANGANYIKA TERRITORY
0 100 200 300 400 500 MILES
· SCALE ·

FIGURE 9.—Distribution of *Turdoides leucopygia*.

1. *T. l. leucopygia.*
2. *T. l. limbata.*
3. *T. l. smithii.*
4. *T. l. lacuum.*
5. *T. l. omoensis.*

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[13] Systema avium Æthiopicarum, pt. 2, p. 354, 1930.

grayish, sometimes almost blackish, while in *smithii* these parts are grayish white. Furthermore, the present race has well-developed whitish superciliary stripes, which are not present in *lacuum*, and the latter has the rump less pure whitish than *smithii.*

Zedlitz[14] has reviewed the forms of the white-rumped babbler and, on the whole, his conclusions seem fairly sound as far as the available material indicates. There appears to be some confusion, however, with regard to the northern limits of the range of *limbata.* Zedlitz claims that this race inhabits northern Shoa (the drainage area of the Blue Nile) and also the western Hawash Valley, and that typical *leucopygia* inhabits northern and central Ethiopia (Tigre district, etc.). Sclater, on the other hand, concludes that *leucopygia* occurs only in the Danakil coastal area and on the eastern slope of the eastern Ethiopian escarpment, while *limbata* occurs from northern Shoa to Lake Tsana and the Anseba Valley in Eritrea. Reichenow[15] records *leucopygia* from Bogosland and the Tigre district of extreme northern Ethiopia. Finsch[16] records *limbata* from Bogosland and *leucopygia* from northeastern Ethiopia (Undel Wells and Rayray-guddy) but considers the former the immature plumage of the latter. The total evidence available to me substantiates Sclater's statement of range rather than Zedlitz's.

In northeastern Africa there are then five subspecies, as follows:

1. *T. l. leucopygia:* The Danakil and Eritrean coastal belt, and inland to about 8,000 feet on the eastern Ethiopian escarpment.

2. *T. l. limbata:* Bogosland south through the Tigre country to northern Shoa. Similar to the nominate race, but only a small frontal white band, as against the whole forehead and fore-crown white in *leucopygia.*

3. *T. l. smithii:* British Somaliland to Harrar and the Arussi-Galla countries. Like *limbata* but with no transverse white frontal mark on the forehead; the superciliary stripes, chin, upper throat, and cheeks grayish white.

4. *T. l. lacuum:* The lake region of the southern Hawash region from Lake Swai south to approximately the southern end of Lake Abassi; in other words, to the demarcation line between the Hawash region and the southern Shoan area as given by Erlanger.[17] This form resembles *smithii* but lacks the whitish superciliaries, and has the chin and upper throat dusky grayish.

5. *T. l. omoensis:* The drainage basin of the Omo and Sobat Rivers, northeast to the Sidamo district, north of Lake Abaya in southern Shoa. This form is like *lacuum* but has the gray of the

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[14] Journ. für Orn., 1911, pp. 73–74.

[15] Die Vögel Afrikas, vol. 3, p. 665, 1905.

[16] Trans. Zool. Soc. London, 1870, pp. 243–244.

[17] Journ. für Orn., 1904, map 5.

chin, upper throat, malar region, and lores blackish; the centers of the feathers of the throat and breast darker than in *lacuum*, and the lower abdomen and the rump darker, somewhat washed with buffy. Neumann[18] notes that two specimens of *lacuum* from Sidamo are blackish gray on the chin and upper throat, and are really intermediate between it and *omoensis*. I should call these birds *omoensis* and not *lacuum*. It is a little unfortunate that the type locality of *lacuum* is so near the southern limits of the range of that form, but, on the other hand, the two races are very distinct and should never be difficult to tell apart.

In central Africa (from Lake Kivu and the western shores of Lake Tanganyika to southern Angola and to Lake Ngami) a brownish form without white margins on the throat and breast feathers occurs—*hartlaubii*. It appears, on what is now considered to be rather insufficient evidence, that the birds of the eastern Congo may be separable on the basis of slightly darker size, in which case the name *ater* Friedmann is available for them.

Besides the present specimen, I have seen two other examples of *smithii*, a male from Harrar and an unsexed bird without data. The Harrar bird is slightly darker, especially on the breast and tail, than the Moulu specimen. The former is in fresher plumage than the latter; in fact, it is just finishing the molt, the outermost primary in each wing being still inclosed basally in its sheath. The Moulu bird has noticeably darker under wing coverts than either the Harrar or the other specimen. Whether this variation is individual or geographical in nature, I can not say without more material. It is a point worth keeping in mind, however.

Hawker[19] found this babbler frequenting rocky hills in British Somaliland, where it "went in families and was very noisy."

TURDOIDES LEUCOPYGIA LACUUM (Neumann)

FIGURE 9

Crateropus smithi lacuum NEUMANN, Bull. Brit. Orn. Club, vol. 14, p. 15, 1903: Alelu, Lake Abassi, Ethiopia.

SPECIMENS COLLECTED: 2 males, 1 female, near Aletta, Sidamo, Ethiopia, March 6, 1912.

Soft parts: Iris red, bill black, feet gray.

The characters and range of this form have already been outlined and need not be repeated here.

The present specimens are in fairly fresh plumage. Their dimensions are as follows: Males—wing, 110, 114; tail, 105, 111; culmen, 22; tarsus, 34, 36 mm. Female—wing, 113; tail, 101; culmen, 21; tarsus, 37 mm.

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[18] Journ. für Orn., 1906, p. 261.

[19] Ibis, 1899, p. 73.

TURDOIDES LEUCOPYGIA OMOENSIS (Neumann)

FIGURE 9

Crateropus smithi omoensis NEUMANN, Bull. Brit. Orn. Club, vol. 14, p. 15, 1903: Senti River, affluent of the Omo, southwestern Ethiopia.

SPECIMENS COLLECTED:

1 male, 1 female, Loco, Sidamo, Ethiopia, March 15, 1912.
1 female, Gidabo River, Ethiopia, March 15, 1912.

Soft parts: Iris red; bill black; feet gray.

These three specimens, together with Neumann's two "intermediates between *lacuum* and *omoensis*"[20] extend the range of *omoensis* to the Sidamo district. The present three birds are in no way intermediate in their characters but are typical examples of *omoensis*.

This race is very slightly smaller (average difference only) than *lacuum*. The male has the following dimensions: Wing, 110; tail, 113; culmen, 21.5; tarsus, 34 mm. Females: Wing 109–113; tail, 98–100; culmen, 21.5, 22; tarsus, 33.5, 34 mm. This species appears to decrease in size and to increase in darkness from east to west across its range.

Nothing has been recorded of its habits other than that it usually goes in small flocks and is noisy. Ogilvie-Grant[21] writes that specimens collected in July in the Gofa and Uba regions were in molt.

The altitudinal range of *omoensis* appears to be 4,000 to 7,000 feet.

TURDOIDES HYPOLEUCA (Cabanis)

Crateropus hypoleucus CABANIS, Journ. für Orn., 1878, pp. 205, 226: Kitui, Ukamba, Kenya Colony.

SPECIMENS COLLECTED:

1 male, Big Bend Hill, Thika River, Kenya Colony, August 28, 1912.
1 male, between Thika and Athi Rivers, Kenya Colony, August 29, 1912.

The Kenya pied babbler is a common bird in the southern parts of Kenya Colony from the Ukamba and South Kenya Provinces through the Kikuyu and Teita districts. Van Someren[22] writes that its range extends to the coast, but I know of no records nearer the coast than Useguha and Kilimanjaro. In northern Tanganyika Territory it occurs on the upper stretches of the Pangani River, but not, as far as I know, at the mouth.

Neumann[23] has separated the Pangani, Useguha–Kilimanjaro birds under the name *rufuensis*, on the basis of paler dorsal coloration, the rump and upper tail coverts lighter than the back; the forehead light gray, and the feathers of the upperparts with pale margins. Sclater does not mention *rufuensis* at all, but Sjöstedt[24] recognizes it. I have seen no specimens from the range of Neumann's form, but I find that a series of 17 birds from Ukamba and adjacent areas contains individuals showing one or more of, or even all, the characters of *rufuensis*. Therefore, for the present at least, I consider the latter as indistinguishable from *hypoleuca*.

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[20] Journ. für Orn., 1906, p. 261.
[21] Ibis, 1913, p. 622.
[22] Nov. Zool., vol. 29, p. 234, 1922.
[23] Orn. Monatsb., 1906, p. 148.

One of the present specimens is in molt, the other in fresh plumage. The dimensions of the latter one are: Wing, 109; tail, 107; culmen, 19; tarsus, 36 mm.

Van Someren[25] writes that this is a common species, "frequenting the outskirts of forests, the scrub, and plantations. They are noisy birds, and their cry is harsh and oft-repeated. They were found breeding in February and March, a nest with eggs was collected in February, and one with young towards the end of March."

Lönnberg[26] found a family of this species at Nairobi on January 6 and collected the old female and a young female. This extends the limits of the breeding season back to about early December.

TURDOIDES HINDEI (Sharpe)

Crateropus hindei SHARPE, Bull. Brit. Orn. Club, vol. 11, p. 29, 1900: Athi River.

SPECIMENS COLLECTED:

1 male, Tana River at mouth of Thika River, Kenya Colony, August 23, 1912.
1 male, 9 miles up Thika River, Kenya Colony, August 27, 1912.

Sclater[27] writes that *hindei* is possibly nothing but the juvenal plumage of *T. hypoleuca*. This is wrong, as a nestling *hypoleuca* not yet fully fledged shows very clearly that the juvenal plumage resembles that of the adult, and is very different from that of *hindei*. Furthermore, the plumage of *hindei* generally known is the adult and not the juvenal stage. The juvenal plumage of *hindei* appears never to have been described. While with the Smithsonian–Roosevelt expedition, Mearns obtained a young *hindei* just beginning to molt into adult plumage. It shows the preceding plumage very well, a brief description of which follows:

Forehead, crown, occiput, lores, cheeks, auriculars, nape, chin, and sides of throat uniform dark fuscous-black; upper back fuscous barred with tawny-rufous; lower back, rump, and upper tail coverts bright tawny-rufous; rectrices fuscous-brown indistinctly barred with rufous-brown; upper wing coverts and remiges fuscous-brown, the inner coverts and the secondaries margined with rufous; middle of throat and the breast dull fuscous-black, grayer than the top of the head, and the feathers narrowly tipped with grayish white; abdomen whitish heavily washed with pale tawny on the flanks and under tail coverts. A few of the new white-tipped feathers are coming in on the forehead and crown, and the molt is fairly well advanced on the throat and breast in this young bird.

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[24] Wissenschaftliche Ergebnisse der schwedischen zoologischen Expedition nach dem Kilimandjaro . . . Deutsch- Ostafrika, 1905–6, etc., Vögel, p. 156, 1908.

[25] Ibis, 1916, p. 464.

[26] Kongl. Svenska Vet.-Akad. Handl., 1911, p. 125.

[27] Systema avium Æthiopicarum, pt. 2, p. 355, 1930.

The two adults obtained by the Frick expedition are of interest in that they are not quite alike. Thus, the Tana River specimen has all the remiges fuscous-brown, while the bird from the Thika River has some of these feathers broadly tipped with white but not the same remiges in both wings are thus colored. The latter bird also has some grayish-white tips to some of the rectrices as well. It is in fresher plumage than the Tana River bird.

Van Someren [28] collected a series of adults in fresh plumage, which showed unusual variations. He says: "One * * * has the whole of the breast and abdomen pure white, thus resembling somewhat *C. hypoleucus*, but the upperside is that of typical *hindei*."

This babbler has a curiously restricted range wholly coincident with, though not so extensive as that of *hypoleuca*. It has been taken in the Ukamba and South Kenya Provinces, north to the Tana River.

The measurements of the present two examples are as follows: Wing, 100, 101; tail, 104, 106; culmen, 19.5, 21; tarsus, 34, 34.5 mm.

ARGYA RUBIGINOSA RUBIGINOSA (Rüppell)

Crateropus rubiginosa Rüppell, Systematische Uebersicht der Vögel Nordost-Afrika's, p. 47, pl. 19, 1845: Shoa.

Specimens collected:

5 males, 1 female, Dire Daoua, Ethiopia, December 6–22, 1911.
1 male, Black Lake Abaya, south, Ethiopia, March 25, 1912.
1 male, 1 female, near Gardula, Ethiopia, March 28–29, 1912.
12 males, 14 females, Gato River near Gardula, Ethiopia, April 3–May 11, 1912.
1 male, Anole village, Ethiopia, May 18, 1912.
2 males, Bodessa, Ethiopia, May 25–27, 1912.
2 females, Sagon River, Ethiopia, June 3–4, 1912.
1 female, Tertale, Ethiopia, June 11, 1912.
1 male, Malata, Ethiopia, June 22, 1912.
1 female, east of Lake Stefanie, Kenya Colony, April 26, 1912.
1 male, 18 miles southwest of Hor, Kenya Colony, July 1, 1912.
2 males, 1 female, Endoto Mountains, south, Kenya Colony, July 21–22, 1912.
1 male, 1 female, Northern Guaso Nyiro River, Kenya Colony, August 2, 1912.
1 male, 1 female, Tharaka district, Kenya Colony, August 13, 1912.
1 female, Tana River, camp 6, Kenya Colony, August 21, 1912.
2 males, 2 females, junction of Tana and Thika Rivers, Kenya Colony, August 24–25, 1912.
1 male, 1 female, between Thika and Athi Rivers, Kenya Colony, August 29, 1912.

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[28] Nov. Zool., vol. 29, p. 233, 1922, and vol. 37, p. 338, 1932.

Soft parts: Male—iris pale clear yellow; bill pale olive-brown, paler and greenish below; feet and claws fleshy olive color, palest on tarsus. Female—iris pale greenish yellow; bill horn-color, flesh-color at base of mandible; feet and claws pale grayish brown.

Hartert [29] has reviewed the nomenclature and races of the rufous chatterer and has come to conclusions that seem entirely correct to me. In the present connection I have carefully examined some 78 specimens representing all three forms and find that Hartert's arrangement (which is adopted by Sclater [30]) is wholly substantiated. The present series of the nominate form shows considerable variation in coloration, some specimens being practically as dark generally as the coastal race *heuglini*, but the two forms may be readily distinguished by the color of the lores, which are rufous in the latter and grayish in *rubiginosa*. Also, on the whole, *heuglini* is generally darker above, more richly rufous below. It occurs along the East African coast from the Juba River to Zanzibar.

In central Tanganyika Territory another race, *emini*, is found. This form is a very well-marked one, being characterized by having the forehead and most of the crown distinctly grayish, with light grayish tips to the feathers, a somewhat slenderer bill and smaller wings (80–82 mm). Van Someren [31] has called birds from the Mount Kenya district south to Simba and Masongoleni *emini*, but in this he is mistaken. Birds from this region are typical *rubiginosa*.

In the same paper van Someren also stated that birds from south-central Kenya Colony are darker than specimens from northern Uganda. I have seen a series from Gondokoro, in the extreme southern part of the Anglo-Egyptian Sudan, which ought to be the same as Ugandan birds, but which are indistinguishable from others from Kenya Colony from the Ethiopian border south to the Athi River.

Argya sharpii Oglivie-Grant and Reid is merely a giant example of typical *rubiginosa*, a conclusion that is by no means new but is of interest because a suggestion has been made that races based on size characters might be recognized in northeastern Africa. The type of *sharpii* is said to have a wing length of 96.5 mm. In his notes on the types of birds in the Tring Museum Hartert [32] writes that this unique type, although much larger, "agrees in other ways perfectly with *Crateropus* (*Argya*) *rubiginosus rubiginosus*, and it was rash to describe it as 'new species' from this one specimen. Without further material it cannot be ascertained whether this is a distinct subspecies or an exceptionally large specimen." The type came from Shebelli, a region from which typical *rubiginosa* has been obtained.

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[29] Bull. Brit. Orn. Club, vol. 43, p. 132, 1923.

[30] Systema avium Æthiopicarum, pt. 2, p. 356, 1930.

[31] Nov. Zool., vol. 29, p. 235, 1922.

[32] Nov. Zool., vol. 27, p. 486, 1920.

Van Someren[33] has recently reinstated *sharpei* as the name of a large race inhabiting the area at the junction of the Juba and Darea Rivers.

The present series contains birds in fresh plumage, others in abraded condition, and some in molt, but the dates are rather meaningless unless they mean that this species breeds more or less throughout the year and that therefore specimens in different plumage conditions occur side by side. Molting birds were taken on the following dates: April 12, June 3, 4, 11, July 21, and August 24. Supposedly mated pairs were collected on April 17, July 21, and August 2.

The size variations of this series are shown in table 16.

TABLE 16.—*Measurements of 58 specimens of* Argya rubiginosa rubiginosa

Locality	Sex	Wing	Tail	Culmen	Tarsus
ETHIOPIA:		*Mm*	*Mm*	*Mm*	*Mm*
Dire Daoua	Male	90.0	115.0	17.0	27.0
Do	do	86.0	108.5	18.0	28.0
Do	do	87.0	113.0	17.5	27.0
Do	do	84.0	111.0	17.5	27.5
Do	do	85.0	110.0	17.5	27.0
Black Lake Abaya	do	84.0	100.0	17.0	29.5
Near Gardula	do	83.5	105.0	17.5	27.0
Gato River	do	86.0	106.0	17.0	30.0
Do	do	88.0	108.0	16.5	28.0
Do	do	87.0	111.0	16.5	29.0
Do	do	87.0	113.5	18.0	30.0
Do	do	85.0	103.0	16.0	29.0
Do	do	90.0	119.0	17.0	29.0
Do	do	91.0	114.0	16.5	29.5
Do	do	84.0		17.5	30.0
Do	do	88.0	108.0	17.0	29.0
Do	do	90.0		17.0	30.0
Do	do	88.0	107.0	18.0	30.5
Do	do	86.0	102.0	17.5	27.5
Anole village	do	83.0	104.0	17.0	29.0
Bodessa	do	87.0	104.5	17.5	28.0
Do	do	81.0	105.0	16.0	30.0
Malata	do	79.0	102.0	16.0	28.0
KENYA COLONY:					
18 miles southwest of Hor	do	84.0	106.0	17.0	30.0
Endoto Mountains	do	86.0	115.0	17.0	29.0
Do	do	83.0	113.0	17.0	28.0
Guaso Nyiro River	do	84.0	110.0	17.0	29.5
Tharaka district	do	82.5	107.0	16.0	29.0
Tana River	do	81.0	113.0	16.5	30.0
Do	do	87.0	111.5	18.0	30.0
Thika-Athi Rivers	do	88.0	110.0	17.0	29.0
ETHIOPIA:					
Dire Daoua	Female	88.0	105.0	17.0	29.5
Near Gardula	do	84.0	101.0	17.0	29.5

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[33] Nov. Zool., vol. 37, p. 340, 1932.

Table 16.—*Measurements of 58 specimens of* Argya rubiginosa rubiginosa—Con.

Locality	Sex	Wing	Tail	Culmen	Tarsus
Ethiopia—Continued.		*Mm*	*Mm*	*Mm*	*Mm*
Gato River	Female	87.0	103.0	16.0	29.5
Do	do	86.0	105.0	18.0	29.0
Do	do	82.0	100.5	17.0	28.0
Do	do	88.0	108.0	17.0	28.0
Do	do	88.0	111.0	18.0	30.0
Do	do	90.0	106.0	16.0	29.0
Do	do	87.0	109.0	16.5	30.0
Do	do	86.0	110.0	16.5	31.0
Do	do	83.0	106.0	15.5	28.0
Do	do	84.0	100.0	16.5	30.0
Do	do			15.0	29.0
Do	do	83.0	99.5	17.0	28.5
Do	do	88.0	110.0	16.5	29.0
Do	do	87.0	110.0	17.0	28.0
Sagon River	do	83.5	104.5	17.0	28.0
Do	do	83.5	106.0	17.0	28.5
Tertale	do	87.5	112.0		28.5
Kenya Colony:					
East of Lake Stefanie	do	86.0	107.0		29.0
Endoto Mountains	do	83.0	106.0	16.0	27.0
Guaso Nyiro River	do	84.0	112.0	16.5	28.0
Tharaka district	do	82.0	104.0	15.5	29.0
Tana River	do	80.0	99.0	16.0	27.0
Do	do	84.5	107.0	16.5	29.5
Do	do	84.0	100.0	16.5	28.5
Thika-Athi Rivers	do	81.0	96.5	17.0	28.5

This babbler is a characteristic inhabitant of the bushy thickets, where it goes about in small flocks and where its drawn-out notes are among the most noticeable of the chorus of avian sounds.

Erlanger[34] writes that the breeding season is very prolonged, lasting from early in March until June—so prolonged that one might consider the birds double-brooded. The nests are built of grasses and leaves, lined with grass heads, and are placed in the dense bushes. This bird is one of the chief victims of the pied cuckoo (*Clamator jacobinus jacobinus*). Erlanger found two nests, both with eggs of this cuckoo, one on March 26 at Kata and one on June 8 at Webi-Shebelli. Another nest, found on June 10 in the Hawash region, contained three eggs of the babbler and none of the cuckoo.

Besides the actual specimens collected, Mearns recorded seeing this bird as follows: At the Abaya Lakes, March 19–26, 36 seen; between the Abaya Lakes and Gardula, March 26–29, 50 birds; Gato River, March 29–May 17, 500; Anole village, May 18, 100; Sagon River and Bodessa, May 19–June 6, 1,200 seen; Tertale, June 7–12, 150; El Ade, June 12–13, 20 birds; Mar Mora, June 14–15, 75; Turturo, June 15–17, 20 noted; Wobok, June 18, 25 birds; Saru, June 19, 20 seen; Yebo, June 20, 10; Karsa Barecha, June 21, 100; Malata, June 22, 30 seen;

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[34] Journ. für Orn., 1905, p. 739.

Chaffa, June 23–25, 30 birds seen; Nyero Mountains, July 13, 10 noted; Indunumara Mountains, July 13–18, 35; Endoto Mountains, July 18–24, 200; Er-re-re, July 25, 50 birds seen; Le-se-dun, July 26, 50; Malele, July 27, 20 noted; 35 miles north of Northern Guaso Nyiro River, July 29–30, 20 seen; Northern Guaso Nyiro River, July 31–August 3, 200 birds; Tharaka district, August 12–14, 130 seen; Tana River, August 15–23, 150; Tana River at mouth of Thika River, August 23–26, 200; east of Ithanga Hills, August 26, 20 birds; 9–20 miles up the Thika River, August 27, 40 seen; west of Ithanga Hills, August 28, 25 birds; between Thika and Athi Rivers, August 29, 30 birds seen.

Hachisuka,[35] in studying a series of the Indian babbler *Argya longirostris*, finds that the birds of Munipur are separable from typical Nepalese examples. For the former he revives Godwin-Austen's name *rubiginosa.*[36] I am not concerned here with the validity of the Munipur form, but point out that *rubiginosa* Godwin-Austen, 1874, is preoccupied by *rubiginosa* Rüppell, 1845. I have not looked to see if another name is available, but if not the Munipur race is without a name.

ARGYA AYLMERI AYLMERI Shelley

Argya aylmeri Shelley, Ibis, 1885, p. 404, pl. 11: Somaliland.

Specimens collected:

1 male, Nyero Mountain, Indunumara Mountains, Kenya Colony, July 13, 1912.

2 females, Indunumara Mountains, Kenya Colony, July 16, 1912.

Sclater [37] recognizes four races of this bird, but I doubt if more than two are really valid. Hartert described *loveridgei* from southeastern Kenya Colony,[38] and later [39] he synonymized it with *keniana* Jackson. Van Someren [40] has, in turn, synonymized *keniana* with *mentalis*, a course in which he appears to be justified on the basis of his material, and which is further substantiated, although indirectly, by Hartert's synonymizing of *loveridgei* with *keniana.*

Unfortunately, the material available to me has been very scanty, but the conclusions to which I have come are that only two valid races occur, as follows:

1. *A. a. aylmeri:* British and Italian Somaliland west through southern Arussi-Gallaland and northern Kenya Colony to the Indunumara Mountains.

2. *A. a. mentalis:* Central Kenya Colony south to the Dodoma and Singida and Kondoa Irangi districts of central Tanganyika

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[35] Tori, vol. 5, no. 25, English column, p. 20, 1928.

[36] Proc. Zool. Soc. London, 1874, p. 47.

[37] Systema avium Æthiopicarum, pt. 2, pp. 356–357, 1930.

[38] Bull. Brit. Orn. Club, vol. 43, p. 119, 1923.

[39] Nov. Zool., vol. 34, p. 214, 1928.

[40] Nov. Zool., vol. 29, p. 235, 1922.

Territory. This form is generally darker than the nominate one, especially on the underparts and on the crown, and is slightly larger in size.

The present specimens are the southwesternmost records for *aylmeri* and extend its known range westward by nearly 400 miles. The male has the pale edges of the throat feathers more rufescent than the females and, in this respect, approaches the characters of "*keniana*", a form of which I have not seen any typical material.

The three birds obtained by the Frick expedition are in worn plumage and are in an early stage of molt. Their dimensions are as follows: Male—wing, 80; tail, 117; culmen, 19; tarsus, 29 mm. Females—wing, 71–72.5; tail, 111.5–114; culmen, 17; tarsus, 26.5–28 mm. A pair of *mentalis* from central Tanganyika Territory have wings measuring 81 mm in the male and 77 mm in the female.

Zedlitz[41] writes that the birds of southern Somaliland are only questionably referable to *aylmeri*, as they are smaller than the measurements given by Reichenow for typical north Somaliland birds. Zedlitz found the wing lengths of four south Somali males to be 67 to 71 mm, as against 75 to 78 mm for typical *aylmeri*.

Van Someren has recently[42] recognized *keniana* and *loveridgei*, but "for the time being" only.

The scaly chatterer appears to be uncommon throughout its range and has been collected only a small number of times. Erlanger[43] recorded it as much scarcer and more secretive in habits than *A. rubiginosa*. He found it singly or in pairs, except for one group of five birds seen on April 4 in Gurraland. On April 2, he found a nest with two eggs at Kata on the Mane River in the southern Ginir area. The nest was in a clump of bushes and euphorbias and was about 5 feet from the ground. The eggs were fresh and probably the two did not comprise a full clutch. The male bird was found sitting on the nest, a fact that Erlanger interprets as meaning not that incubation is performed by the male as a rule but that the male merely sits on them while the female is away before the latter actually begins to incubate.

PSEUDOALCIPPE ABYSSINICUS ABYSSINICUS (Rüppell)

Drymophila abyssinica RÜPPELL, Neue Wirbelthiere, zu der Fauna von Abyssinien gehörig, etc., Vögel, p. 108, pl. 40, 1835: Simien Mountains, Ethiopia.

SPECIMENS COLLECTED: Male, Aletta, Ethiopia, March 9, 1912.

Lack of adequate material prevents me from doing more than merely tabulating the previously recorded facts of variation and range of this species. Four races are currently recognized. They are:

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[41] Journ. für Orn., 1916, pp. 103–104.

[42] Nov. Zool., vol. 37, pp. 340–341, 1932.

[43] Journ. für Orn., 1905, p. 739.

1. *P. a. abyssinicus:* Northeastern and eastern Africa from the Simien Mountains, northern Ethiopia, south through Shoa and Kenya Colony to the Kikuyu and Kilimanjaro districts and the Usambara Mountains. Of this form *kilimensis* Shelley is a synonym. Van Someren[44] lists *kilimensis* as a species, but he evidently examined no material, for all he writes is "apparently confined to the Kilimanjaro Range" and lists no specimens. Neumann[45] was unable to find any differences between Ethiopian specimens (typical *abyssinicus*) and others from Kikuyu (apparently *kilimensis*). Recently van Someren[46] examined material and states that birds from Kilimanjaro, South Mau, Aberdare, and Mount Kenya are darker on the head, mantle, and underside than northern birds, and hints that *kilimensis* may be valid.

Shelley himself[47] admitted that his form *kilimensis* was indistinguishable from *abyssinicus.*

2. *P. a. monachus:* The mountains of Cameroon. This race differs from the typical subspecies in color, being darker on the crown, brighter reddish brown on the upperparts, especially on the rump, upper tail coverts, and the edges of the remiges and rectrices, and darker brown on the flanks.

3. *P. a. claudei:* The island of Fernando Po, where it is confined to high altitudes. Similar to *monachus* but with the gray of the head and nape extending much farther down the back; the flanks and thighs duller rufous-brown.

4. *P. a. ansorgei:* Benguella and Mossamedes, Angola. Differs from *abyssinicus* in having the crown paler ashy gray and tinged with brown, back, rump, wings, and upper tail coverts paler brown, middle of abdomen slightly more grayish.

The present specimen is slightly smaller than a male from Mount Garguess (Mount Uraguess of van Someren's papers), Kenya Colony. The dimensions of the former are: Wing, 68; tail, 60; culmen, 13; tarsus, 21.5 mm. Those of the latter are: Wing, 71; tail, 68; culmen, 14; tarsus, 22.5 mm.

This bird is wholly a denizen of high mountain forests, its altitudinal range being from 7,500 to 9,500 feet in Ethiopia, while on Kilimanjaro it occurs down to 6,000 feet. Neumann (*loc. cit.*) found it only in the high mountains from 7,500 to 9,000 feet, where it lives in the dense vegetation of the forests. Erlanger[48] met with it at Gara Mulata, at Dabaaso near Adis Abeba, in the Shoan lakes region, and in Djamdjam. Lovat found it somewhere lower down, in the forested valleys of southern Arussi-Gallaland.

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[44] Nov. Zool., vol. 29, p. 245, 1922.

[45] Journ. für Orn., 1906, p. 281.

[46] Nov. Zool., vol. 37, p. 341, 1932.

[47] The birds of Africa, etc., vol. 2, p. 210, 1900.

[48] Journ. für Orn., 1905, p. 750.

In Kenya Colony, it is found on all the wooded highlands from Elgon to northern Kikuyu and Mount Kenya. According to van Someren it does not occur in the southern Kikuyu forests.

The breeding season is in April, as Erlanger found a nest with five eggs on April 22 at Cialanco on the mountain route from Harrar to Adis Abeba, Ethiopia.

Grote[49] has suggested that *P. atriceps* is a racial form of *abyssinicus*, but, in spite of his argument that coloration is but a mask to hide relationships, I do not agree with him. It may well be that in some cases an apparently great difference in color may be due to some small genetic difference, but when we have no evidence but that afforded by the coloration, it is highly speculative to claim that the only available evidence is deceptive and to completely reverse its implications.

LIOPTILORNIS GALINIERI (Guérin)

Parisoma galinieri GUÉRIN-MÉNEVILLE, Rev. Zool., 1843, p. 162: "Abyssinia."

SPECIMENS COLLECTED:

1 male, 1 female, Arussi plateau, 9,000 feet, Ethiopia, February 20, 1912.
2 males, Cofali, Arussi, Ethiopia, March 2–3, 1912.

This species has been placed in several different genera, and even families, by different workers, and a genus *Parophasma* was proposed for it by Reichenow. I have carefully compared it with *Parisoma* and *Lioptilornis* and can find no reason for keeping it distinct from the latter group. The only difference, aside from coloration, is that the present bird has rather stiff frontal feathers, which no other *Lioptilornis* possesses. Neumann[50] writes that he considers this bird as nearest to *Lioptilus nigricapillus* of South Africa and mentions the nature of the frontal feathers as the chief point of difference, on the basis of which he recognizes *Parophasma* as a genus. Sharpe[51] definitely refers *galinieri* to *Lioptilus.* On the other hand, Ogilvie-Grant[52] writes that he can not see any good reason for separating *Parophasma* from "*Parisoma* as it is evidently of the same genus as *P. subcaeruleum*, which is the type of that genus." In a previous paper[53] he states that it agrees well with *P. subcaeruleum* in structure as well as in coloration. A comparison of *L. galinieri* and *P. subcaeruleum* shows that Ogilvie-Grant was misled by the general similarity in coloration, but his statement that the two are alike in structure is wholly wrong. The former has a much more rounded wing, more squarely truncated, less graduated tail, and a differently shaped bill. I consider it as demonstrated that *galinieri* is a *Lioptilornis*, although admittedly the most distinct of all the species of that genus. *Parophasma* may be used in a subgeneric sense to give expression to the distinctness of *galinieri*. *L. rufocinctus* Rothschild[54] is said to be structurally near *galinieri*.

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[49] Orn. Monatsb., vol. 34, pp. 53–54, 1926.
[50] Journ. für Orn., 1906, pp. 281–282.
[51] Proc. Zool. Soc. London, 1884, p. 231.
[52] Ibis, 1913, p. 627.
[53] Ibis, 1900, p. 153.

As this species is rather scarce in collections, I give in table 17 the dimensions of the four examples obtained by the Frick expedition.

TABLE 17.—*Measurements of four specimens of* Lioptilornis galinieri *from Ethiopia*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Cofali	Male	88	80	14	26.5
Do	do	89	79	15	27.0
Arussi Plateau	do	86	86	15	26.0
Do	Female	87	78	14	25.0

According to Mearns's notes, the two birds collected on February 20 were a mated pair. He found these birds in the vines growing on the juniper trees in the highland forests. Von Heuglin[55] found this species living in pairs in bushy thickets and on tall trees in the Simien Mountains, Begemeder, Wogara, Wadla, in Gallaland, and in Shoa in places of from 8,000 to 12,000 feet above the sea. To these localities Neumann adds the Omo drainage basin and the mountains of the Kaffa district. Erlanger[56] found it in the Djamdjam country. Judging by the condition of the gonads of his specimens and by his observations on the song season, Erlanger fixed the breeding season of this bird as from the end of March to late in July. Toward the end of July he found a pair with newly fledged young near Adis Abeba. All writers agree in declaring this bird to be one of the finest, if not the very finest, singer of all the birds of Africa, several of them in their field notes calling it the African nightingale. Erlanger found that each pair had a definite region (wholly comparable to the more recent idea of breeding territory) and that it was possible to estimate the number of birds by the number of spots from which the songs came.

Oberholser[57] has found that *Lioptilus* Cabanis[58] is preoccupied by *Leioptila* Blyth,[59] another genus of Timaliidae, and he has proposed in its stead the generic name *Lioptilornis*, used in this report.

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[54] Bull. Brit. Orn. Club, vol. 23, p. 6, 1908: Lake Kivu.

[55] Ornithologie Nordost Afrika's, etc., vol. 1, pp. 395–396, 1869.

[56] Journ. für Orn., 1905, pp. 750–751.

[57] Proc. Biol. Soc. Washington, vol. 35, p. 136, 1921.

[58] Museum Heineanum, vol. 1, p. 88, 1850.

[59] Journ. Asiatic Soc. Bengal, vol. 16, pt. 1, p. 449, 1847.

Family PYCNONOTIDAE, Bulbuls

PYCNONOTUS DODSONI DODSONI Sharpe

FIGURE 10

Pycnonotus dodsoni SHARPE, Proc. Zool. Soc. London, 1895, p. 488: Sillul, Ogaden, western Somaliland.

SPECIMENS COLLECTED:

1 male, Yebo, Ethiopia, June 20, 1912.
1 male, Chaffa village, Ethiopia, June 24, 1912.
2 males, Hor, Kenya Colony, June 28–30, 1912.
7 males, 5 females, 18 miles southwest of Hor, Kenya Colony, July 1–2, 1912.
1 male, Dussia, Kenya Colony, July 3, 1912.
1 male, Lake Rudolf, southeast, Kenya Colony, July 11, 1912.
1 female, 25 miles southeast of Lake Rudolf, Kenya Colony, July 12, 1912.
1 female, Endoto Mountains, south, Kenya Colony, July 23, 1912.
1 female, Le-se-dun, Kenya Colony, July 26, 1912.
1 male, 1 female, 24 miles south of Malele, Kenya Colony, July 29, 1912.

In studying the geographic and individual variations of the white-eared geelgat, I have examined a series of 70 specimens representing four of the five named forms. The treatment accorded these forms by different writers has been so varied and contradictory that I have felt it necessary to go into the matter in some detail. The names to be considered are: *Pycnonotus dodsoni* Sharpe,[60] *Pycnonotus spurius* Reichenow,[61] *Pycnonotus layardi peasei* Mearns,[62] *Pycnonotus dodsoni teitensis* van Someren,[63] and *Pycnonotus dodsoni littoralis* van Someren.[64]

Sclater [65] considers all these five synonymous and recognizes no races of *P. dodsoni*. Gyldenstolpe [66] admits two forms—*dodsoni* (with *peasei*, *teitensis*, and *littoralis* as synonyms), and *spurius*. As a result of my study of both literature and material, I find it not only possible, but also essential, to recognize *dodsoni*, *spurius*, and *peasei*. Of *littoralis* I have seen no material, but *teitensis* is not distinct from *peasei*. I have examined specimens from Maktau and Taveta (both of which should be *teitensis* on geographic grounds) and find them indistinguishable from typical *peasei*. When describing *teitensis*, van Someren had no *peasei* available and sent his birds to Washington, where Doctor Oberholser compared them with the identical series of that form that I have examined and found them to be distinct. My observations reverse his conclusions, and the only deduction that may be drawn is that the differences he found were individual ones.

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[60] Proc. Zool. Soc. London, 1895, p. 488: Sillul.

[61] Die Vögel Afrikas, vol. 3, p. 841, 1905: Ennla Gallaland.

[62] Smithsonian Misc. Coll., vol. 56, no. 20, p. 8, 1911: Kitunga.

[63] Nov. Zool., vol. 29, p. 190, 1922: Tsavo.

[64] Bull. Brit. Orn. Club, vol. 43, p. 153, 1923: Changamwe.

[65] Systema avium Æthiopicarum, pt. 2, p. 370, 1930.

[66] Kongl. Svenska Vet.-Akad. Handl., 1924, pp. 191–192.

For the present, in the absence of material, I follow Sclater in considering *littoralis* as not valid, and place it in the synonymy of *peasei.*

The ranges and characters of the three races are as follows:

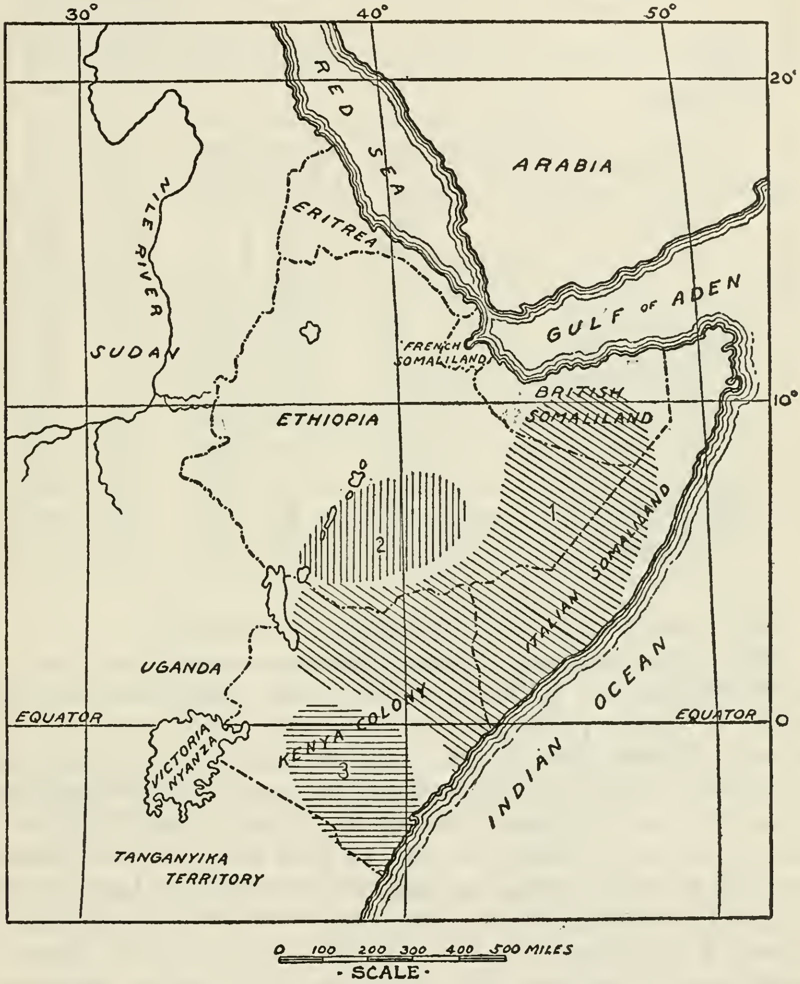
1. *P. dodsoni dodsoni:* Central and southern British Somaliland, south through Italian Somaliland and the eastern Hawash and Ogaden districts of Ethiopia, westward in extreme southern Gallaland and Shoa and northern Kenya Colony to Lakes Stefanie and Rudolf, south approximately to the Northern Guaso Nyiro River, and south along the coast to the mouth of the Tana River. This race is rather small, the wing length varying from 78 to 84 mm in males and 70 to 81 mm in females. It has the rectrices tipped with white when fresh.

2. *P. dodsoni spurius:* This form is altitudinally distinct from *dodsoni*, occurring somewhat higher up as a rule, and inhabits Ennia and southern Arussi-Gallaland, west to the southern part of the Shoan lakes district. It is larger than the nominate form, wings measuring 83 to 92 mm in males, 80 to 86 mm in females. In the eastern part of its range (topotypical *spurius*) it lacks the white tips on the rectrices, but the birds of southern Shoa are intermediate in this respect between *spurius* and *dodsoni*, and some have white tips while others do not.

3. *P. dodsoni peasei:* Central and southeastern Kenya Colony, from a little north of the Equator to the Tanganyika border. (This is assuming that *littoralis* is not separable.) This race is larger than *dodsoni*, wings 83 to 92 mm in males, 75 to 86 mm in females, and is darker generally than either *dodsoni* or *spurius*, and in fresh plumage, has a slight olive-yellowish wash on the edges of the feathers of the upper parts, and with the feathers of the lower breast more heavily striped centrally with dark brown than in either of the other races. Inasmuch as the main character on which *littoralis* was based is the less mottled breast, it appears that the birds forming this aggregate are merely intermediates between *peasei* and *dodsoni*, which suggestion is supported both by geography and ecology. From *spurius*, which it resembles in size, *peasei* may be told by the greater development of the white tips on the rectrices and its darker, more heavily mottled breast, but it must be admitted that series are needed to show the differences. Thus, Gyldenstolpe had only a small series (four specimens) and was not able to make out any color differences.

The present series of *dodsoni* contains birds all collected within approximately a month, but some of them are in worn plumage, some in fresh feathers, and others are molting, indicating that the breeding season was probably recently over when they were taken (most recently finished in the case of those in worn plumage, least recently in the case of the freshly feathered individuals). This diversity of plumage condition shows that even in fresh feathers there is no olive tinge as in the corresponding stage of *peasei.*

The caudal molt is usually centrifugal but appears to be subject to some irregularity, as one specimen has shed and replaced only the outermost pair of rectrices, while another has the middle and the outermost pair new and the rest old.


30°
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RED SEA
ARABIA
NILE RIVER
ERITREA
GULF OF ADEN
SUDAN
FRENCH SOMALILAND
BRITISH SOMALILAND
ETHIOPIA
1
2
ITALIAN SOMALILAND
UGANDA
KENYA COLONY
OCEAN
INDIAN
EQUATOR
EQUATOR
VICTORIA NYANZA
3
TANGANYIKA TERRITORY
0 100 200 300 400 500 MILES
SCALE

FIGURE 10.—Distribution of *Pycnonotus dodsoni.*

1. *P. d. dodsoni.*
2. *P. d. spurius.*
3. *P. d. peasei.*

If wear is taken into consideration in comparing these birds with *peasei*, the darker color of the latter is very noticeable, and, for that matter, even worn *peasei* are definitely darker than fresh *dodsoni.*

The size variations of the present series are shown in table 18.

TABLE 18.—*Measurements of 23 specimens of* Pycnonotus dodsoni dodsoni

Locality	Sex	Wing	Tail	Culmen	Tarsus
ETHIOPIA:		*Mm*	*Mm*	*Mm*	*Mm*
Yebo	Male	78.0	66.0	15.0	20.0
Chaffa	do	81.0	69.0	14.0	19.0
KENYA COLONY:					
Hor	do	78.0	68.0	14.0	19.0
Do	do	83.0	71.0	15.0	20.0
18 miles southwest of Hor	do	81.0	70.0	14.0	20.0
Do	do	79.0	68.0	14.0	20.5
Do	do	82.5	72.0	14.0	20.0
Do	do	83.0	77.0	15.0	20.0
Do	do	81.0	72.0		20.0
Do	do	84.0	73.0	15.0	21.0
Do	do	79.0	69.0	14.0	21.0
Dussia	do	83.0	72.0	14.0	19.0
Lake Rudolf, southeast	do	83.0	66.0	14.0	20.5
Malele, 24 miles south	do	82.0	68.0	15.0	21.0
18 miles southwest of Hor	Female	77.0	67.5	14.0	20.0
Do	do	78.0	67.0	14.5	19.0
Do	do	77.0	63.0	14.0	18.5
Do	do	79.0	69.0	14.5	20.0
Do	do	81.0	65.0	14.0	19.5
Lake Rudolf, southeast	do	80.0	66.0	14.0	20.0
Endoto Mountains	do	81.0	72.0	14.0	20.5
Le-se-dun	do	70.0	70.0	15.0	19.0
Malele, 24 miles south	do	80.0	69.0	15.0	20.0

Little seems to be known of the habits of this bulbul.

Besides the specimens collected, Mearns observed this form at many localities, the following records being culled from his notebooks: At Turturo, June 15–17, 45 birds were noted; Anole, June 17, 10 seen; Wobok, June 18, 100; near Saru, June 19, 100 observed; Yebo, June 20, 25 birds; Karsa Barecha, June 21, 50; Malata, June 22, 4 seen; Chaffa villages, June 23–25, 16 birds; Hor, June 26–30, 200; dry river, 18 miles southwest of Hor, July 1–2, 200; Dussia, July 3–4, 25 birds; around the east and south sides of Lake Rudolf, July 5–11, 25 birds noted; 25 miles southeast of Lake Rudolf, July 12, 10 seen; Nyero Mountains, south of Lake Rudolf, July 13, 10 noted; Indunumara Mountains, July 13–18, 20 birds; Endoto Mountains, July 18–24, 120; Er-re-re, July 25, 25 seen; Le-se-dun, July 26, 25 birds; Malele and country to the south for 25 miles, July 27–29, 150; Northern Guaso Nyiro River, July 31–August 3, 60 seen; Lekiundu River, August 4–8, 2 birds noted.

Van Someren[67] has recently considered *dodsoni* a race of *P. tricolor*, a course which I hesitate to follow in view of the distribution of the *dodsoni* group and the *tricolor* group.

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[67] Nov. Zool., vol. 37, p. 347, 1932.

PYCNONOTUS DODSONI SPURIUS Reichenow

FIGURE 10

Pycnonotus spurius REICHENOW, Die Vögel Afrikas, etc., vol. 3, p. 841, 1905: Ennia Gallaland.

SPECIMENS COLLECTED:

5 adult males, 7 adult females, 1 juvenal female, Bodessa, Ethiopia, May 20–31, 1912.
1 adult male, Sagon River, Ethiopia, June 3, 1912.
1 adult male, Tertale, Ethiopia, June 10, 1912.

Soft parts: Iris dark brown; entire bill black; feet and claws grayish black.

As intimated in the account of the nominate race of this geelgat, specimens of western *spurius* are not typical and often have white-tipped rectrices (in fresh plumage). It may even be thought worth naming the birds of extreme southern Shoa and southern Arussi-Gallaland on this basis, but in the absence of topotypical material I prefer to let the matter rest. Also, it seems not at all unlikely that they are intermediates bridging the gap between true *spurius* and *dodsoni*.

The dimensions of these specimens, given in table 19, clearly show their agreement in size with *spurius* and not with *dodsoni*.

TABLE 19.—*Measurements of 14 specimens of* Pycnonotus dodsoni spurius *from Ethiopia*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Sagon River	Male	87.0	74.0	16	19.5
Tertale	do	84.0	71.5	15	19.5
Bodessa	do	86.0	74.0	14	21.0
Do	do	88.0	77.0	16	21.0
Do	do	84.0	74.0	15	19.5
Do	do	84.5	75.0	14	21.5
Do	do	83.0	76.5	14	19.5
Do	Female	85.0	74.0	14	18.0
Do	do	82.0	75.0	14	19.5
Do	do	85.0	70.0	14	19.0
Do	do	83.0	69.0	15	19.0
Do	do	80.0	70.0	15	20.5
Do	do	81.0	--------	14	19.0
Do	do	86.0	74.0	14	20.5

For some reason unknown to me this bird appears to have been met with by very few collectors, and yet it is a common bird where it occurs, as evidenced by the present series and by the sight records listed in his notebooks by Mearns. Thus, at Sagon River, on May 19 he saw several of the birds; at Bodessa, May 19–June 6, 250 were noted; at Sagon River again on June 3–6, 200 more were seen; at

Tertale, June 7–12, over 100 birds; and at El Ade, June 13, 10 were observed.

The juvenal bird taken on May 20 at Bodessa could not have been out of the nest for more than 10 days, which would suggest that the eggs were laid about April 10. The tail feathers of this bird are about an inch long and are therefore only a third grown. They have no white tips.

The juvenal plumage resembles that of the adult but the top of the head is brown, not blackish, and the lower breast is paler brown. Unfortunately, the specimen has the chin and upper throat still bare, but probably, when feathered, this region is brown, not blackish as in adults.

Most of the specimens are in worn plumage, but two are molting the rectrices. Here again, as in *dodsoni*, the caudal molt appears to be somewhat irregular, although on the whole, centrifugal.

PYCNONOTUS DODSONI PEASEI Mearns

FIGURE 10

Pycnonotus layardi peasei MEARNS, Smithsonian Misc. Coll., vol. 56, no. 20, p. 8, 1911: Kitunga, Kenya Colony.

SPECIMENS COLLECTED:

1 male, Meru forest, Equator, Kenya Colony, August 10, 1912.
2 males, 1 female, Tharaka district, Kenya Colony, August 12–13, 1912.
2 males, 4 females, Tana River, Kenya Colony, August 17–24, 1912.
1 male, Bowlder Hill, Thika River, Kenya Colony, August 28, 1912.

The characters and range of this race have already been discussed. The measurements of the present series, combined with those of the type and paratypical series, are given in table 20.

While at Meru on August 10, Mearns saw about 100 of these birds; the following day, when 20 miles east of Meru on the trail to the Tana River, he noted 200; in the Tharaka district, August 12–14, 1,500; and on the Tana River, August 15–23, over 500.

TABLE 20.—*Measurements of 25 specimens of* Pycnonotus dodsoni peasei *from Kenya Colony*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Meru Forest	Male	87	76	15.5	21.0
Tharaka district	do	90	78	15.0	21.0
Do	do	84	74	15.0	20.0
Tana River	do	90	76	15.0	21.0
Do	do			14.0	19.0
Bowlder Hill	do	92	82	15.0	20.0
Between Potha and Kapiti Plains	do	90	83	16.0	21.0
Do	do	90	83	15.5	21.0
Potha	do	87	77	14.0	21.0
Do	do	83	74	14.5	20.0
Kitunga (type)	do	84	76	14.3	20.0

TABLE 20.—*Measurements of 25 specimens of* Pycnonotus dodsoni peasei *from Kenya Colony*—Continued

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Kitunga	Male	83	76	15.0	19.5
Mount Lololokui	do	83	73	15.0	20.0
Mount Garguess		82	74	15.5	19.0
Tharaka district	Female	83	71	15.0	20.5
Tana River	do	83	72	15.0	20.0
Do	do	87	79	15.0	19.0
Do	do	78	71	15.5	19.5
Do	do	82	74	15.0	20.0
Kitunga	do	80	73	14.0	20.0
Do	do	80	71	13.5	19.0
Do	do	75	75	13.5	19.0
Do	do	76	76	14.0	20.0
Mount Lololokui	do	86	76	16.0	20.5
Do	do	86	77.5	15.0	20.0

PYCNONOTUS TRICOLOR FAYI Mearns

Pycnonotus layardi fayi MEARNS, Smithsonian Misc. Coll., vol. 56, no. 20, p. 7, 1911: Fay's Farm, Njabini, Kenya Colony.

SPECIMENS COLLECTED: 1 male, 9 females, Escarpment, Kenya Colony, September 4–10, 1912.

I have examined a series of over 200 specimens of the races of this bird and find that the conclusions reached by Sclater[68] are correct except for the following points:

1. *P. tricolor pallidus* is a recognizable, though not too well differentiated form.

2. The names *phaeocephalus* Mearns and *tanganjicae* Reichenow are synonyms of *minor* and not of typical *tricolor*.

3. The range of the nominate form does not extend to Uganda, as *minor* is the resident form in that country as well as in Ruanda, Urundi, northwestern Tanganyika Territory, and the eastern Belgian Congo.

The present race is a common bird in its range, and it is significant on that account that it was not met with in the Indunumara and Endoto Mountains. Mount Kenya and Muhuroni appear to constitute its northern limits.

The breeding season is during September and October, and probably March as well.

The male collected has the following dimensions: Wing, 90; tail, 79; culmen, 16; tarsus, 21 mm. The females: Wing, 88–94; tail, 79–84; culmen, 14–16; tarsus, 20–22 mm. It appears that the male is a particularly small one, as van Someren[69] gives 95 to 102 mm as the wing length in the males in his series.

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[68] Systema avium Æthiopicarum, pt. 2, pp. 371–372, 1930.

[69] Nov. Zool., vol. 29, p. 190, 1922.

PYCNONOTUS BARBATUS SCHOANUS Neumann

FIGURE 11

Pycnonotus barbatus schoanus NEUMANN, Orn. Monatsb., vol. 13, p. 77, 1905: Kilbe, Kollu Province, Shoa.

SPECIMENS COLLECTED:

5 males, 2 females, Dire Daoua, Ethiopia, November 27–December 20, 1911.
1 female, Gada Bourca, Ethiopia, December 25, 1911.
3 males, 2 females, Sadi Malka, Ethiopia, December 21, 1911–January 31, 1912.
1 female, Adis Abeba, Ethiopia, January 8, 1912.
1 female, Malke, Ethiopia, March 3, 1912.
1 male, 2 females, Aletta, Ethiopia, March 10–11, 1912.
3 males, 1 female, Gardula, Ethiopia, March 27–28, 1912.
5 males, 2 females, Gato River near Gardula, Ethiopia, April 3–27, 1912.

The forms of the white-vented brown bulbul have been reviewed by several workekrs, such as Harter,[70] Sclater and Praed,[71] and others, and I find their general conclusions as modified and set down by Sclater [72] to be correct. I have studied a series of some 55 specimens representing five of the six races. Of the form found in British Somaliland, *P. somaliensis* Reichenow, I have seen no material, but I doubt whether it is a distinct species as Sclater rates it. In fact, Hartert writes that it is very closely allied to *arsinoe*, the north Sudan form, "so closely that even Prof. Reichenow called it *P. arsinoe somaliensis.* It differs only by its smaller size, the wings measuring in the ♂, 87–91, in the ♀ about 77 to 84 mm. It is thus evident that this form is not easily recognizable, and I should doubt its distinctiveness if it were not for the slender bills which it exhibits when compared with *P. b. arsinoe.* Reichenow's statement that it is paler brown on the upper surface is not correct as far as one can make out from the 8 rather worn specimens collected by Baron von Erlanger. On the contrary, judging from a few fresh growing feathers, I am inclined to think that *somaliensis* is rather darker than *arsinoe*, not paler . . ." Yet, in the same paper, in tabulating the forms of *P. barbatus*, Hartert characterizes *somaliensis* as "smaller than *arsinoe*, but of about the same pale coloration."

I have gone into the question of the characters of *somaliensis* because of the possibility that the birds of the Hawash Valley (Dire Daoua and Gada Bourca) might represent a degree of intergradation between *schoanus* and the northern Somali race. As may be seen from the measurements given in table 21, these specimens are, on the whole, rather small, but the difference between them and those from Shoa is not great or constant enough to have any real significance.

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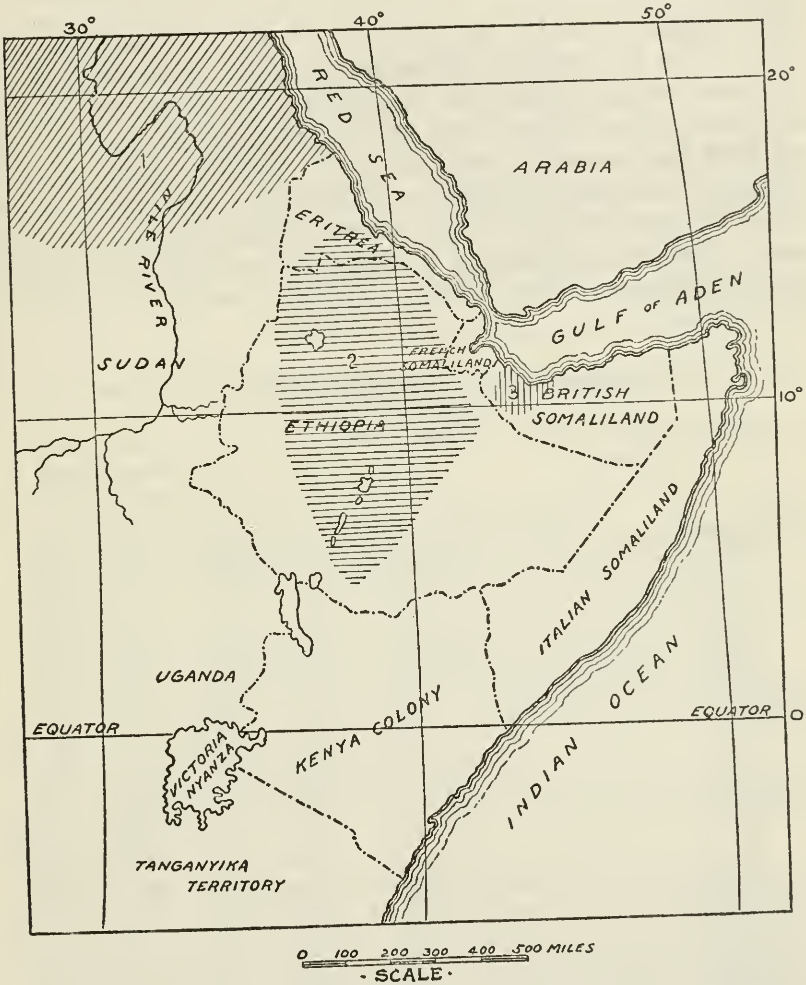
[70] Nov. Zool., vol. 13, pp. 390–391, 1906.
[71] Ibis, 1918, p. 697.
[72] Systema avium Æthiopicarum, pt. 2, pp. 372–373, 1930.

If it is assumed that *somaliensis* is a valid form, there are three races of this bird in northeastern Africa, as follows:

1. *P. b. arsinoe*: Egypt to Khartoum, Roseires, and Lake No, west to Kordofan and Darfur. Lynes[73] mentions specimens of this form from the Red Sea Province of the Sudan, which would extend its range as stated above, eastward to the Red Sea.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RED SEA
ARABIA
NILE RIVER
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FRENCH SOMALILAND
GULF OF ADEN
BRITISH SOMALILAND
SUDAN
ETHIOPIA
ITALIAN SOMALILAND
UGANDA
KENYA COLONY
VICTORIA NYANZA
EQUATOR
EQUATOR
INDIAN OCEAN
TANGANYIKA TERRITORY
0 100 200 300 400 500 MILES
· SCALE ·

FIGURE 11.—Distribution of *Pycnonotus barbatus* in northeastern Africa.
1. *P. b. arsinoe.* 2. *P. b. schoanus.* 3. *P. b. somaliensis.*

2. *P. b. schoanus:* The inland plateau of Ethiopia from Eritrea and Bogosland to southern Shoa. This race is darker above than *arsinoe*, but in worn plumage it becomes very similar to the latter, when the difference is most pronounced on the rectrices and remiges.

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[73] Ibis, 1925, p. 120.

3. *P. b. somaliensis:* Known only from British Somaliland (Zeila on the coast and Somadu on the inland plateau). This race appears (from contradictory statements in literature) to differ from the other two chiefly in being smaller, the color characters being open to question.

The present form has an altitudinal range of from fairly low down in the hot tropical valleys up to nearly 10,000 feet in the mountains, which accounts for its general distribution in Ethiopia. It appears to reach its maximum in population density between 7,000 and 9,000 feet, according to Neumann.[74] Zedlitz[75] found it fairly ubiquitous in northern Ethiopia and judged that the breeding season in the Eritrean–Danakil coastlands was during January and February, while in the highlands of Bogosland and Tigre it appeared to occur late in summer. Mearns collected a mated pair on March 10 at Aletta.

TABLE 21.—*Measurements of 29 specimens of* Pycnonotus barbatus schoanus *from Ethiopia*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Dire Daoua	Male	87.0	81.0	16.0	21.0
Do	do	84.5	77.5	16.0	20.0
Do	do	94.0	86.0	17.0	22.0
Do	do	93.0	84.0	16.0	21.5
Do	do	90.0	80.0	15.5	21.0
Sadi Malka	do	93.0	85.0	16.5	21.5
Do	do	89.0	81.0	16.0	21.0
Do	do	95.0	81.0	16.0	21.5
Aletta	do	95.0	84.0	16.0	22.0
Gardula	do	89.0	83.0	16.0	20.0
Do	do	92.0	85.0	17.0	20.5
Do	do	92.0	84.0	16.5	21.5
Gato River	do	86.0	77.0	15.0	21.0
Do	do	97.0	84.0	17.0	20.0
Do	do	93.0	83.0	16.0	21.0
Do	do	92.0	84.0	16.0	21.0
Do	do	91.0	80.0	16.0	21.0
Dire Daoua	Female	88.0	82.0	16.5	21.5
Do	do	85.0	79.0	17.0	21.5
Gada Bourca	do	87.0	77.0	14.5	21.5
Adis Abeba	do	95.0	85.0	16.0	20.0
Sadi Malka	do	88.0	80.0	15.0	20.0
Do	do	97.0	71.0	16.0	21.5
Malke	do	83.5	80.5	16.0	21.0
Aletta	do	91.0	86.0	16.0	21.0
Do	do	91.0	83.0	17.0	20.0
Gardula	do	90.0	79.0	16.0	20.5
Gato River	do	86.5	76.0	16.0	21.0
Do	do	91.5	82.5	16.0	21.0

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[74] Journ. für Orn., 1906, p. 241.

[75] Journ. für Orn., 1911, p. 55.

The measurements of the present series are given (table 21) for the use of future investigators who may have occasion to study this bulbul.

One of the birds from Sadi Malka is in very worn plumage and is very much paler and tawnier above than any of the others. In dorsal coloration it is nearer to *P. xanthopygos reichenowi* than to *P. b. schoanus*, but is otherwise typical of the latter.

None of the birds are actually in molt, but some are in fresh plumage, and others taken at the same time are in abraded feathering.

Mearns found this bulbul to be abundant along the Hawash Valley from Dire Daoua to Gada Bourca, during his stay there. At Aletta, March 7–13, he saw about 1,000; at Loco, March 13–15, 100 birds; Gidabo River, March 15–17, 50 noted; the Abaya Lakes, March 18–23, 170 birds; between the Abaya Lakes and Gardula, March 26–29, 12 birds; Gato River near Gardula, March 29–May 17, about 500 birds.

PHYLLASTREPHUS STREPITANS (Reichenow)

Criniger strepitans Reichenow, Orn. Centralb., 1879, p. 139: Malindi, Kenya Colony.

Specimens collected:

1 male, 1 female, Gardula, Ethiopia, March 27, 1912.
4 males, 8 females, Gato River near Gardula, Ethiopia, April 2–May 8, 1912.
1 male, Bodessa, Ethiopia, June 1, 1912.
3 males, 3 females, 2 nestling females, Sagon River, Ethiopia, June 3–5, 1912.
2 males, Endoto Mountains, south, Kenya Colony, July 23–24, 1912.
2 males, 1 female, Tana River, Kenya Colony, August 15–17, 1912.

Soft parts: Iris dark brownish red; bill olivaceous-black, pale below at base; feet and claws plumbeous.

The birds from Bodessa, Sagon River, and Kenya Colony listed above constitute the original series on the basis of which Mearns described *fricki*.

In studying the present series (and a small additional one), I have carefully gone over the characters and ranges of the several so-called races of this bird and find that individual variation is greater than geographic and that no local forms can be successfully maintained. I am not unmindful, however, of the fact that Zedlitz[76] concluded that there were three valid forms—*strepitans*, *pauper*, and *sharpei*, and that Bannerman[77] also recognized *pauper*, and while not listing *sharpei*, he grants the validity of *rufescens*. Sclater[78] recognizes no subspecies of this bulbul.

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[76] Journ. für Orn., 1916, pp. 66–67.

[77] Rev. Zool. Africaine, vol. 12, p. 32, 1924.

[78] Systema avium Æthiopicarum, pt. 2, p. 382, 1930.

The forms to be taken into consideration are: *P. sharpei* Shelley,[79] *P. rufescens* Hartlaub,[80] *P. pauper* Sharpe,[81] and *P. s. fricki* Mearns.[82] There is no need to go into the question of Reichenow's *Calamocichla schillingsi*, as Neumann [83] conclusively showed it to be a synonym of *sharpei.*

P. sharpei is said to be more rufescent than *P. strepitans.* So too is *P. rufescens.* In the present series this character is found to be very variable. Furthermore, a topotype of *sharpei* in the Museum of Comparative Zoology (A. Loveridge collection) is not any more rufescent than the most rufous examples of *fricki.*

P. pauper is said to be distinguished from *P. strepitans* by its brown tail and absolute want of any olive shade in the plumage. Here again we have a rufous bird compared with a less rufous one, a condition that can be matched throughout the range of *P. strepitans.*

Finally, *P. s. fricki* is said to have the back drab-color, while in *strepitans* it is sayal brown and in *pauper* snuff brown. Again, the characters mean nothing; sex, wear, age, and season all have a rôle in this, and on top of it all is the factor of individual variation. If I were to attempt to recognize forms based on degree of rufescence in the brown, I would have to call them all species with wholly coincidental ranges—an obviously improbable state of affairs.

As additional evidence against the validity of racial forms in this species, it may be noted that Neumann [84] collected two specimens in southern Ethiopia. These he compared with the types of *strepitans*, *sharpei*, and *pauper* and found them all alike. He found that *sharpei* and *pauper* were described by error, as their respective authors compared them with series of *P. capensis suahelicus*, which they mistook for *strepitans.*

Sclater gives the range of the present species as "Upper White Nile (Lado) and south-western Abyssinia through the drier parts of Kenya Colony to Dar es Salaam and the coastal districts of Tanganyika Territory." To this may be added the northeastern Belgian Congo, southern Shoa, Gallaland, and Somaliland.

Aside from the great variation in intensity of shade of the dorsal coloration, the species shows a good deal of dimensional variation. Thus, van Someren [85] found the wings to range from 65 to 82 mm. I do not find nearly so great a range in the present series, as may be seen from the measurements given in table 22.

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[79] Ibis, 1880, p. 334: Dar es Salaam.

[80] Orn. Centralb., 1882, p. 91: Lado.

[81] Proc. Zool. Soc. London, 1895, p. 489: Shebele River, Gallaland.

[82] Smithsonian Misc. Coll., vol. 41, no. 25, p. 1, 1914: Tana River.

[83] Nov. Zool., 1908, p. 244.

[84] Journ. für Orn., 1906, p. 240.

[85] Nov. Zool., vol. 29, 1922, p. 184.

Molting birds were collected on the following dates—April 2, 15, and 21 and June 4 and 25. The March specimen is fairly abraded; the July and August ones are quite freshly feathered.

The juvenal plumage is similar to that of the adult. The two nestlings obtained were collected with the parents. There were three young in all, but only two were preserved. These two appear to have been about 10 to 12 days old, which, about two weeks being allowed for incubation, would put the date for eggs at about May 10.

TABLE 22.—*Measurements of 26 specimens of* Phyllastrephus strepitans

Locality	Sex	Wing	Tail	Culmen	Tarsus
ETHIOPIA:		*Mm*	*Mm*	*Mm*	*Mm*
Gardula	Male	76.0	83.0	18.5	21.0
Gato River	do	81.0	88.0	20.0	22.5
Do	do	83.0	87.0	21.0	23.0
Do	do	84.0	90.0	19.5	23.0
Do	do	85.0	86.0	19.0	23.0
Bodessa	do	81.0	78.0	20.0	21.0
Sagon River	do	79.0	83.0	20.0	23.0
Do	do	83.0	86.5	19.0	22.0
Do	do	83.0	87.0	20.0	23.0
KENYA COLONY:					
Endoto Mountains	do	80.0	87.0	20.0	21.5
Do	do	79.0	89.0	20.0	23.0
Tana River	do	84.0	87.0	20.0	22.5
Do	do	81.0	84.5	21.0	23.0
ETHIOPIA:					
Gardula	Female	75.5	84.0	19.5	21.0
Gato River	do	74.0	79.0	19.0	21.0
Do	do	75.0	82.0	19.0	--------
Do	do	82.0	88.0	19.5	22.0
Do	do	78.0	85.0	19.0	21.5
Do	do	82.0	85.0	20.5	21.0
Do	do	73.0	79.0	18.0	21.0
Do	do	73.0	76.0	18.5	22.0
Do	do	73.5	82.0	18.5	22.0
Sagon River	do	81.0	86.0	18.0	23.0
Do	do	73.0	74.0	16.5	21.0
Do	do	74.0	80.0	17.0	22.5
KENYA COLONY: Tana River	do	73.0	79.0	16.0	21.0

PHYLLASTREPHUS FISCHERI PLACIDUS (Shelley)

Xenocichla placida SHELLEY, Proc. Zool. Soc. London, 1889, p. 363: Mount Kilimanjaro.

SPECIMENS COLLECTED:

1 male, Meru forest, Kenya Colony, August 9, 1912.
1 male, Escarpment, Kenya Colony, September 8, 1912.

I have carefully compared three Kilimanjaro birds (topotypical *placidus*) with eleven birds from Mount Kenya including the type of *keniensis* Mearns, and find that Sclater[86] is quite correct in stating that *keniensis* is a synonym of *placidus*. In his original description of the former (to which, if valid, the present two specimens would have to be referred) Mearns wrote that *keniensis* could be distinguished from *placidus* by its more greenish-gray upperparts and paler, less brownish head.[87] Neither of these characters holds even in Mearns's series of paratypes.

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[86] Systema avium Æthiopicarum, pt. 2, p. 384, 1930.

Similarly, birds from the Uluguru Mountains are *placidus*. I have not seen any specimens from southeastern Tanganyika Territory, whence Reichenow[88] described *grotei*, a paler form. Sclater considers this as the same as typical *fischeri*.

Sclater has disposed of *sokokensis* van Someren, *cognitus* Grote, *dowashanus* Madarász, and *munzneri* Reichenow, and, judging from the descriptions and material available, I agree with his conclusions.

The two races are distinguishable on the basis of the color of the upperparts, the typical form being paler, especially on the head, which is not distinctly browner than the back, than is *placidus*.

The specimen taken in September at Escarpment is in molt; the August bird from Meru is in fresh plumage.

Recently van Someren[89] has described a form from Marsabit under the name *P. f. marsabit*. I have seen no pertinent material and can not form any opinion of it. It is said to be intermediate in color between *fischeri* and *placidus*.

PHYLLASTREPHUS CERVINIVENTRIS LÖNNBERGI Mearns

Phyllastrephus cerviniventris lönnbergi Mearns, Smithsonian Misc. Coll., vol. 61, no. 25, p. 2, 1914: Tharaka district, Kenya Colony.

Specimens collected: 1 male, Tharaka district, Kenya Colony, August 12, 1912.

This specimen is the type and, as far as I know, the only adult example of *lönnbergi*. Sclater[90] considers this form as probably identical with typical *cerviniventris*. When he described *lönnbergi*, Mearns had only the present specimen and one of *cerviniventris* from Taveta, and the published comments on a Meru (Equator) bird collected by Lönnberg.[91] I have seen two additional specimens of the typical race from the Uluguru Mountains, Tanganyika Territory, and they help to substantiate the validity of Mearns's race. Of course, additional material of *lönnbergi* is what is really needed, but for the present it is advisable to recognize this form. The two races then are as follows:

1. *P. c. cerviniventris:* Northern Rhodesia, Nyasaland, the Katanga, and Tanganyika Territory north to the Kilimanjaro region

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[87] Smithsonian Misc. Coll., vol. 61, no. 25, pp. 2–3, 1914.

[88] Orn. Monatsb., vol. 18, p. 8, 1910: Mikindani.

[89] Journ. East Africa and Uganda Nat. Hist. Soc., 1931, p. 197.

[90] Systema avium Æthiopicarum, pt. 2, p. 385, 1930.

[91] Kongl. Svenska Vet.-Akad. Handl., 1911, p. 115.

and to Taveta, Lake Jipe, and Bura, in southern Teita district, Kenya Colony.

2. *P. c. lönnbergi:* The Mount Kenya area (Meru-Tharaka district). Similar to *cerviniventris* but with the head slightly more cinereous, the back darker olive, the underparts duskier and more rusty, on the middle of the breast. Inasmuch as Lönnberg's immature bird and Mearns's adult both show these characters (which, however, are rather slight), I feel that the race is recognizable, at least until better series are available. Van Someren,[92] judging by analogy with other birds, writes that while he has "not examined a specimen of this race * * * from the locality it must certainly be different from the typical bird." He is wrong in saying that the type came from Meru, as that is where Lönnberg's specimen was taken, while the type was collected two days' journey south of there.

The dimensions of the type are as follows: Wing, 81; tail, 81; culmen (broken); tarsus, 22 mm.

This bulbul appears to be a rather scarce bird all through its range, and practically nothing is known of its habits.

ARIZELOCICHLA TEPHROLAEMA KIKUYUENSIS (Sharpe)

Xenocichla kikuyuensis Sharpe, Ibis, 1891, p. 118: Kikuyu.

Specimens collected: 2 males, 2 females, Escarpment, 7390 feet, Kenya Colony, September 6–10, 1912.

I have examined 15 birds from the Kenya Colony and 1 specimen from Ruwenzori and find them alike. It therefore follows that Reichenow's form *schubotzi*, described[93] from the Rugege Forest near Lake Kivu, is a synonym of *kikuyuensis.* Gyldenstolpe[94] has examined a more extensive series and has also been unable to distinguish between *schubotzi* and the present race.

I have seen no material of typical *tephrolaema*, of *bamendae*, or of *usambarae*, and can not add anything to what has been recorded of them. It is rather strange, however, that such widely separated mountains as Elgon, Kenya, and Ruwenzori should be inhabited by the same race, while the Usambara range should have a very distinct form, differing from the others in having the gray of the throat extending on to the breast and upper abdomen and the gray of the crown somewhat washed with greenish. It is also peculiar that this species does not occur on Kilimanjaro at all. So much collecting has now been done on that mountain that it may be taken as established that this bulbul is definitely absent there.

The four specimens obtained by the Frick expedition are in fresh plumage. Their dimensions are as follows: Males—wing, 84–89; tail,

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[92] Nov. Zool., vol. 29, p. 185, 1922.

[93] Orn. Monatsb., vol. 16, p. 47, 1908.

[94] Kongl. Svenska Vet.-Akad. Handl., 1924, p. 182.

84; culmen, 15.5; tarsus, 21.5 mm; females—wing, 84–84.5; tail, 80–84; culmen, 14; tarsus, 21.5–22 mm.

On Mount Elgon, Granvik[95] found this bird from 6,500 to 7,500 feet. It was fairly common there in the undergrowth in the dense forests. On Ruwenzori, Woosnam[96] found it up to 10,000 feet in the dense undergrowth, but also in the tops of the tallest trees and in the bamboo jungles. He found a nest with one egg on March 4.

CHLOROCICHLA FLAVIVENTRIS CENTRALIS Reichenow

Chlorocichla centralis Reichenow, Journ. für Orn., 1887, p. 74: Loeru, Tanganyika Territory.

Specimens collected: 1 male, Meru Forest, Kenya Colony, August 10, 1912.

This specimen is the type of *Chlorocichla flaviventris meruensis* Mearns.[97]

The subspecies question in the case of the yellow-bellied bulbul in tropical East Africa is rather confusing, and is still an open one. Three names have to be considered in this question: *C. f. centralis* Reichenow, *C. f. mombasae* Shelley, and *C. f. meruensis* Mearns.

Reichenow separated the birds of eastern Africa from those of Natal and Zululand on the basis of the yellower upperparts and lighter, paler yellow underparts. Shelley[98] described a form from Mombasa as being like the South African form but with darker under wing coverts. Mearns described *meruensis* as differing from *mombasae* in having the crown darker, the back more greenish olive, and the underparts more yellowish.

The present specimen bears out the diagnosis of *meruensis*, and at first sight this form appears to be valid. However, two specimens from Morogoro, Tanganyika Territory (nearly topotypical *centralis*), match it very closely. Furthermore, van Someren[99] writes that the only difference he can find "between these up-country birds, and the coastal form is the slightly larger size. The males have wings of 108–114, females 102–108 mm., and perhaps the coloration is brighter. As I have no birds from Meru or Kenia, I am unable to say definitely whether these birds are really the same as the race described by Mearns."

I find that there is no constant size difference between *meruensis* and birds from Morogoro and Dodoma. Birds from the last-named place are *mombasae* in color, although geographically they are as nearly topotypical *centralis*, as are the darker Morogoro birds. I am therefore led to the conclusion that the individual is at least as great as the geographic variation in this bulbul, and that it is unwise to attempt to recognize racial forms in Kenya Colony and the northern half of Tanganyika Territory. The wing lengths of the males examined are as follows: Meru, 102; Dodoma, 100–104; Morogoro, 103–109 mm.

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[95] Journ. für Orn., 1923, Sonderheft, p. 205.

[96] Trans. Zool. Soc. London, 1910, p. 383.

[97] Smithsonian Misc. Coll., vol. 61, no. 25, p. 3, 1914.

[98] The birds of Africa, etc., vol. 1, p. 64, 1896.

[99] Nov. Zool., vol. 29, p. 186, 1922.

Van Someren[1] has recently studied this species and now considers the birds of Kilimanjaro, inland to Kikuyu and Mount Kenya, as *meruensis*, based on their larger size, and the coastal race *mombasae*. If he is correct the latter has a very narrow coastal range, and the Morogoro and Dodoma birds would be *meruensis*. The difference, however, is slight at best, and the recognition of *meruensis* may be deferred until more definite proof is forthcoming, especially since *meruensis* is to be distinguished from *centralis* and not necessarily from coastal birds.

ANDROPADUS INSULARIS FRICKI Mearns

Andropadus fricki MEARNS, Smithsonian Misc. Coll., vol. 61, no. 25, p. 4, 1914: Endoto Mountains, Kenya Colony.

SPECIMENS COLLECTED: 1 male, Endoto Mountains, north, Kenya Colony, July 20, 1912.

This specimen is the type of *fricki*.

I have not been able to examine enough material to come to definite conclusions about the geographic races of the sombre bulbul, but it appears that in addition to the five forms recognized by Sclater,[2] two others are also valid—*subalaris* Reichenow and *kitungensis* Mearns. I have seen no material of *kilimandjaricus* or *somaliensis* and can not pass any judgment on them, but I accept them tentatively on the basis of Sclater's conclusions. The races here recognized are as follows:

1. *A. i. insularis:* Zanzibar and the coastal belt of eastern Africa from Dar es Salaam north to the Pangani River.

2. *A. i. kilimandjaricus:* Known only from Kibonoto on Mount Kilimanjaro, at 4,200 feet. The colored figure given by Sjöstedt[3] resembles *insularis* but is duskier, more grayish olive-brown, less yellowish.

3. *A. i. fricki:* Known only from the Endoto Mountains, northern Kenya Colony. This race has a yellow eye ring, not found in any of the others except *kitungensis*. In the original description of this form, Mearns wrote that it has much more yellow on the underparts than does *insularis*. I fail to find any difference between them in this respect, but *fricki* is darker above than *insularis*.

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[1] Nov. Zool., vol. 37, p. 345, 1932.

[2] Systema avium Æthiopicarum, pt. 2, p. 393, 1930.

[3] Wissenschaftliche Ergebnisse der schwedischen zoologischen Expedition nach dem Kilimandjaro . . . Deutsch-Ostafrika, 1905–6, etc., Vögel, pl. 2, fig. 2, 1908.

4. *A. i. kitungensis:* The plateaus of south-central Kenya Colony—Kitunga, Thika, junction of Thika and Tana Rivers, etc. Similar to *fricki* but larger; wings 90 to 91 mm as against 87 mm in the latter. The yellow eye ring is not always more developed than in *fricki* as Mearns thought.

5. *A. i. subalaris:* The coastal belt of southern Kenya Colony from Mombasa north to Malindi and Lamu, inland to Voi, the Teita and Taveta districts. Similar to typical *insularis*, but with the under wing coverts buffy yellow, not bright yellow.

6. *A. i. somaliensis:* Southern Italian Somaliland. This race is said to resemble *subalaris* but is much paler and has the under tail coverts grayish yellow margined with pale yellow.

7. *A. i. oleaginus:* From the Zambesi Valley, northern Rhodesia, Mozambique, and Nyasaland, north through Tanganyika Territory to as far north as Kilosa. Similar to *insularis* but paler above.

The present specimen of *fricki* appears to be unique as far as I know. It is in good, fresh plumage, and was probably a month or so past breeding when collected. Its dimensions are as follows: Wings, 87; tail, 81; culmen, 16; tarsus, 20 mm.

ANDROPADUS INSULARIS KITUNGENSIS Mearns

Andropadus fricki kitungensis Mearns, Smithsonian Misc. Coll., vol. 41, no. 25, p. 4, 1914: Kitunga, Kenya Colony.

Specimens collected: 1 male, Tana River at mouth of Thika River, Kenya Colony, August 24, 1912.

This specimen has the yellow eye ring only faintly indicated, but this may be partly due to the fact that the eyelids were cut during the skinning process. Still, in general coloration, size, and other characters it agrees most closely with *kitungensis*. Mearns referred it to typical *insularis*, but he had not seen any of the nominate form at the time.

The measurements of this example are as follows: Wing, 92; tail, 88; culmen, 18; tarsus, 22 mm.

Nothing has been recorded of the habits of this form, but the nominate race is known to breed from May to November in coastal Tanganyika Territory.

STELGIDOCICHLA LATIROSTRIS EUGENIA (Reichenow)

Andropadus eugenius Reichenow, Journ. für Orn., 1892, p. 53: Bukoba, Tanganyika Territory.

Specimens collected: 3 males, 1 female, Escarpment, 7,390 feet, Kenya Colony, September 6–10, 1912.

Sclater[4] considers *saturata* Mearns and *pallida* Mearns as synonyms of *eugenia*. Granvik[5] likewise concludes that *saturata* is not distinct. On the other hand, Gyldenstolpe,[6] van Someren,[7] and others declare that *saturata* is valid. None of these investigators was able to examine any material of *pallida* from Mount Garguess (or Uraguess of van Someren's papers), but van Someren concludes that "as the avifauna in this district is peculiar, it is probably sound." I have examined the type and three topotypes of *pallida* and find it perfectly valid. It is known, as yet, only from the type locality, the upper slopes of Mount Garguess. Of *saturata* I have seen the type and four others (from Nyeri and Ngong, near Nairobi) and find that it is also recognizable, although not overly well differentiated. On the whole, it is slightly brighter yellow below and greener above than *eugenia* and is also somewhat larger.

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[4] Systema avium Æthiopicarum, pt. 2, p. 394, 1930.

[5] Journ. für Orn., 1923, Sonderheft, p. 208.

All in all, there are five valid races of the yellow-whiskered bulbul, as follows:

1. *S. l. latirostris:* Cameroon to Gaboon and Portuguese Congo; also Fernando Po. Gyldenstolpe has referred specimens from the Semliki Valley and the Ituri Forest, eastern Belgian Congo, to this race as well, so it may be expected to occur right across from Cameroon to the Semliki River.

2. *S. l. eugenia:* The Kivu district, Urundi, Ruanda, Uganda, extreme northwestern Tanganyika Territory, and western Kenya Colony (Kavirondo, Escarpment, Elgon). Similar to *latirostris* but darker below and larger (wings in males, 86–91 as against 76–85 mm in *latirostris*).

3. *S. l. saturata:* The Mount Kenya highlands south to Kikuyu and Nairobi. Characters as given above.

4. *S. l. pallida:* Mount Garguess. Palest of all the forms, this being most noticeable on the middle of the abdomen.

5. *S. l. congener:* Upper Guinea from Senegal to Southern Nigeria. None seen by me. Said to differ from the typical form in having duskier underparts, browner upperparts, and dark brown rectrices.

The measurements of the present four specimens are as follows: Males—wing, 86, 87, 91; tail, 80, 82, 86; culmen, 15, 15, 16; tarsus, 20, 21, 21.5 mm; female—wing, 86; tail, 79; culmen, 14.5; tarsus 22 mm. The birds are in fairly fresh plumage.

The species appears to breed throughout the year. Van Someren[8] writes that the "nest is usually situated on some low tree of the forest undergrowth. A foundation of dead leaves is first laid down, then the nest proper is built of rootlets and twigs and lined inside with fine fibres. The eggs are dirty pink, with liver-coloured spots and greyish under-markings; the surface is smooth and glossy."

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[6] Kongl. Svenska Vet.-Akad. Handl., 1924, p. 186.

[7] Nov. Zool., vol. 29, p. 189, 1922.

[8] Ibis, 1916, p. 437.

This bulbul is a forest bird, and its distribution is therefore rather discontinuous, and, in Kenya Colony at least, largely confined to high country.

Family TURDIDAE, Thrushes

TURDUS LIBONYANUS CENTRALIS Reichenow

FIGURE 12

Turdus pelios centralis REICHENOW, Die Vögel Afrikas, etc., vol. 3, p. 690, 1905: Lake District of central Africa; type from Wadelai.

SPECIMENS COLLECTED:

1 male, Lake Abaya, southeast, Ethiopia, March 21, 1912.
7 males, 5 females, Gato River near Gardula, Ethiopia, April 1–21, 1912.
1 male, Anole village, Ethiopia, May 18, 1912.

Soft parts: Iris brown; narrow eye ring greenish yellow; bill yellow; feet and claws very pale yellowish brown.

These birds are not wholly typical of *centralis* but are nearer to it than to any other race of this thrush. They suggest a slight approach to *pelios*, the form of the lower parts of northwestern Ethiopia.

I have not seen sufficient material to attempt a revision of the races of this species, and follow the conclusions arrived at by Rensch [9] and adopted by Sclater.[10]

It is rather strange that the Frick expedition failed to meet with and obtain specimens of the northern form *pelios* when traveling along the Hawash River, as it is a common bird there. The present race is slightly brighter in its general coloration and darker on the breast than *pelios*, but on the whole the subspecies of this thrush are rather slightly differentiated.

All the birds collected are in rather worn plumage and are somewhat more brownish, less olive above, and paler on the breast, than two Ugandan birds in fairly fresh plumage. Their dimensions are given in table 23. None of the birds is in molting condition, and all are in adult plumage.

According to Neumann,[11] this bird occurs at altitudes of from 6,000 to 8,300 feet. Mearns, however, collected most of his specimens at 4,000 feet at Gato River.

At the Gato River, March 29–May 17, Mearns saw about 100 of these birds and found them to be breeding. On April 23, he collected a set of three eggs which he attributed to this bird. There seems to be some doubt, however, as to their identification, as they do not agree with the descriptions given by van Someren [12] for Ugandan eggs, or by Erlanger[13] for eggs of *pelios*. The three eggs collected by Mearns are plain, unmarked, lumier blue and measure 21 by 18 mm. According to van Someren, the eggs of *centralis* resemble those of the European blackbird and also the missel-thrush; that is, they are speckled. Erlanger makes a similar comparison for *pelios*.

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[9] Journ. für Orn., 1923, pp. 95–100.
[10] Systema avium Æthiopicarum, pt. 2, pp. 438–440, 1930.
[11] Journ. für Orn., 1906, p. 285.
[12] Ibis, 1916, p. 465.

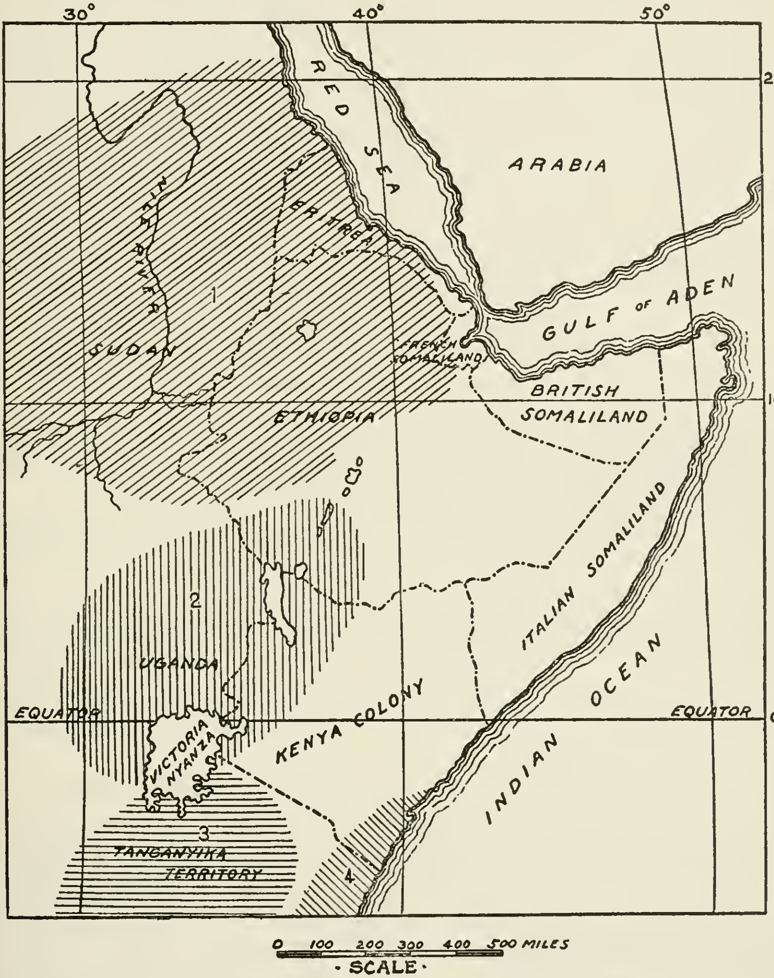
30°
40°
50°
20°
10°
0
RED SEA
ARABIA
GULF OF ADEN
NILE RIVER
ERITREA
1
SUDAN
FRENCH SOMALILAND
BRITISH SOMALILAND
ETHIOPIA
ITALIAN SOMALILAND
2
UGANDA
EQUATOR
EQUATOR
KENYA COLONY
OCEAN
INDIAN
VICTORIA NYANZA
3
TANGANYIKA TERRITORY
4
0 100 200 300 400 500 MILES
· SCALE ·

FIGURE 12.—Distribution of *Turdus libonyanus* in northeastern Africa.

1. *T. l. pelios.*
2. *T. l. centralis.*
3. *T. l. cinerascens.*
4. *T. l. costae.*

The breeding season in Uganda is from April to June and from October to December.

In the Harrar district, *pelios* breeds in April.

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[13] Journ. für Orn., 1905, p. 742.

TABLE 23.—*Measurements of 14 specimens of* Turdus libonyanus centralis *from Ethiopia*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Lake Abaya	Male	118.0	93.0	20.0	30.0
Anole Village	do	116.5	91.5	21.0	32.5
Gato River	do	117.5	90.0		32.0
Do	do	111.5	90.0	20.5	30.5
Do	do	112.0	93.5	21.0	31.0
Do	do	116.0	95.0	20.0	31.0
Do	do	115.5	91.5	20.5	32.5
Do	do	117.0	95.5	20.0	33.0
Do	do	106.0	88.0	20.5	29.5
Do	Female	118.0	84.0	19.0	30.0
Do	do	107.5	86.5	21.0	32.0
Do	do	114.0	89.5	21.0	30.0
Do	do	114.5	83.5	20.0	31.5
Do	do	114.5	86.0	20.0	30.0

TURDUS OLIVACEUS ELGONENSIS (Sharpe)

Merula elgonensis SHARPE, Ibis, 1891, p. 445: "Mt. Elgon"; type from Kikuyu.

SPECIMENS COLLECTED: 6 adult males, 1 immature male, 1 immature female, Escarpment, 7,390 feet, Kenya Colony, September 7–10, 1912.

Sclater,[14] following Rensch,[15] has considered *Turdus milanjensis* and its northern form *uluguru* as races of *T. olivaceus*. A perusal of the literature might make this appear incorrect, as *T. milanjensis uluguru* has been recorded from the Usambara Mountains, a region inhabited by *T. olivaceus roehli*.[16] However, on reexamining the specimens of *uluguru* from the Usambara Mountains, I find they really are *roehli*. I therefore conclude that Rensch and Sclater are justified in their decisions.

Two other criticisms are in order. Firstly, Sclater writes that *Planesticus helleri* Mearns is closely allied to, if not identical with, *Turdus olivaceus roehli*. This is not so. *T. o. helleri* is a very distinct subspecies easily told from any other race of its species by its solid black top and sides of the head, which are very strikingly and abruptly demarcated from the brownish-olive back. Also, the rufous on the sides of the abdomen is vastly richer and deeper than in any race of *olivaceus* and is in marked contrast to the pure white middle of the abdomen.

Secondly, *T. olivaceus polius* Mearns is a good, valid subspecies easily told from *elgonensis* by its paler, grayer coloration. I have seen series of eight birds, including the type, of *polius* from Mounts Garguess and Lololokui. Van Someren [17] finds that *polius* is distinct from *elgonensis* but fails to see wherein it differs from *abyssinicus*. It is noticeably grayer than the latter as well.

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[14] Systema avium Æthiopicarum, pt. 2, pp. 440–442, 1930.

[15] Journ. für Orn., 1923, pp. 100–104.

[16] See Friedmann, Ibis, 1928, p. 94.

[17] Nov. Zool., vol. 29, p. 239, 1922.

In the regions traversed by the Frick expedition, two races of this thrush occur. They are the present one and *abyssinicus*. The former occurs in the highlands of Kenya Colony on both sides of the Rift Valley from Mount Elgon to Mount Kenya and Nairobi. The northern race, *abyssinicus*, occurs from southern Eritrea to Shoa, Gojam, Kaffa, etc., and from Harrar to Arussi-Gallaland. This race averages more olivaceous above than *elgonensis*, but otherwise the two look very similar. The northern form averages slightly larger than the equatorial one.

The adult males have the following dimensions: Wing, 116.5, 108, 118, 121.5, 109.5, 112; tail, 96.5, 89, 95.5, 97.5, 94; culmen, 22.5, 20, 22, 22, 21.5, 21; tarsus, 31.5, 32.5, 33, 33, 31.5, 32 mm.

This thrush is a common bird on the edges of forests, and in the denser, taller scrub. Van Someren[18] found it nesting in April and May, and fledged young were seen in June in the Nairobi region. Mearns saw about 100 of these birds at Escarpment, September 4–12.

Of the present series, one adult and the two young birds are in worn plumage or in molt, while five adults are in fresh feathering.

TURDUS OLIVACEUS ABYSSINICUS Gmelin

Turdus abyssinicus Gmelin, Syst. Nat., vol. 1, pt. 2, p. 824, 1789: Abyssinia.

Specimens collected:

1 male, Adis Abeba, Ethiopia, December 30, 1911.
5 males, 6 females, Arussi Plateau, 9,000 feet, Ethiopia, February 18–29, 1912.
1 male, Aletta, Sidamo, Ethiopia, March 8, 1912.
1 female, Loco, Sidamo, Ethiopia, March 13, 1912.

Soft parts: Male—iris brown; bill and eye ring orange; feet yellow; claws yellowish brown. Female—iris brown; bill and eye ring orange; feet and claws brownish yellow.

The characters and range of this form have already been stated under the discussion of *elgonensis*. The dimensions of the present series are given in table 24.

A female shot on February 20 at Arussi Plateau contained a fully shelled egg, bluish green, thickly marked with brown. This is considerably earlier than the records of nests given by Erlanger[19] who found a set of two eggs on April 23 at Cialanco; another of two eggs three days later at Burko, between Harrar and Adis Abeba; and a third set of two eggs at Cunni on May 12.

The birds collected are mostly in fairly fresh plumage.

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[18] Ibis, 1916, p. 464.

[19] Journ. für Orn., 1905, p. 741.

Mearns found this thrush in the juniper woods and also in the neighboring open country. He noted it as a "sweet singer." Near Aletta and vicinity, March 7–13, he saw about 1,000 of these birds but unfortunately did not note whether they were migrant flocks or whether the species is really so abundant a resident there.

TABLE 24.—*Measurements of 14 specimens of* Turdus olivaceus abyssinicus *from Ethiopia*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Adis Abeba	Male	112.5	93.0	----------	34.5
Arussi Plateau	do	118.0	96.0	21.0	33.5
Do	do	116.0	89.5	20.0	32.0
Do	do	118.0	94.0	20.0	33.5
Do	do	121.0	92.0	22.0	30.0
Do	do	121.5	97.0	22.0	32.5
Aletta	do	107.5	82.0	22.0	30.5
Arussi Plateau	Female	114.0	89.0	20.0	33.0
Do	do	108.0	84.0	21.5	33.0
Do	do	113.0	88.0	22.0	33.5
Do	do	113.0	95.5	21.0	33.5
Do	do	117.5	90.5	20.5	33.0
Do	do	110.0	83.0	21.0	31.0
Loco	do	116.0	80.0	20.5	29.5

TURDUS TEPHRONOTUS Cabanis

Turdus tephronotus CABANIS, Journ. für Orn., 1878, p. 205, 218, pl. 3, fig. 2: Ndi, Teita district, Kenya Colony.

SPECIMENS COLLECTED:

1 male, Sagon River, Ethiopia, June 5, 1912.
1 male, Wobok, Ethiopia, June 18, 1912.
1 male, Endoto Mountains, Kenya Colony, July 20, 1912.
1 male, 25 miles south of Malele, Kenya Colony, July 29, 1912.
1 female, Tana River, camp 3, Kenya Colony, August 16, 1912.

Soft parts: Male (adult)—iris hazel to grayish brown; bill and feet orange; bare orbital region orange to yellowish orange; claws brownish. Immature male—iris garnet; bill and feet red; bare orbital region yellow.

The males from Wobok and Endoto Mountains are immature.

Aside from the surprising difference in eye color recorded for immature and adult birds, the colored figure referred to above shows the bare eye region almost orange-red.

The two Ethiopian specimens are somewhat darker on the sides and flanks than the three Kenyan birds, but a female from the Dodoma district, central Tanganyika Territory, is just as dark. Van Someren [20] notes that specimens from "Lamu, Manda, and Juba River are paler below than typical *tephronotus* with clear grey breast-bands, lacking the ochraceous tinge, and with the throat area not outlined with buff, but with white, and streaked with black. These characters are constant in my series." I have seen no coastal birds and therefore can not add anything pertinent to this.

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[20] Nov. Zool., vol. 29, p. 239, 1922.

The range of the bare-eyed thrush is more extensive than generally thought. Sclater [21] writes it as "Southern Somaliland and the coastal districts of Kenya Colony to Ugogo in Tanganyika Territory." He appears to have overlooked the fact that Erlanger [22] collected a male at Gololoda in Arussi-Gallaland. As far as I know, the present specimens from Sagon River and Wobok are the first ones recorded from Shoa and constitute a new northwestern limit for the range of the species. The presence of this thrush in the Endoto Mountains indicates a wider range in the interior of northern Kenya Colony than hitherto suspected.

The measurements of the present series, plus two from central Tanganyika Territory, are given in table 25. The Wobok bird is in molting condition.

TABLE 25.—*Measurements of seven specimens of* Turdus tephronotus

Locality	Sex	Wing	Tail	Culmen	Tarsus
ETHIOPIA:		*Mm*	*Mm*	*Mm*	*Mm*
Sagon River	Male	110.0	82	23.0	30.0
Wobok	do	109.0	80	24.5	31.0
KENYA COLONY:					
Endoto Mountains	do	115.5	85	25.0	31.0
South of Malele	do	114.0	75	24.0	31.5
TANGANYIKA TERRITORY:					
Dodoma	do	111.0	88	27.5	29.5
Do	Female	104.0	83	25.0	27.0
KENYA COLONY: Tana River	do	105.0	77	23.5	29.0

More material may demonstrate the presence of a long-billed race in central Tanganyika Territory, but until such specimens are forthcoming nothing definite can be done.

These specimens agree quite well with Cabanis's colored figure, but not with the illustration in Seebohm and Sharpe's monograph of the Turdidae (vol. 1, pl. 70).[23]

The breeding season in southern Italian Somaliland is in May. Erlanger found a nest with three much incubated eggs on May 27 at El-Uak-Bardera.

Besides the specimens collected, Mearns saw a very few of these thrushes at Bodessa, June 3–6, at the south end of the Endoto Mountains, July 21–24, and about 30 birds along the Tana River, August 15–17.

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[21] Systema avium Æthiopicarum, pt. 2, p. 442, 1930.

[22] Journ. für Orn., 1905, pp. 741–743.

[23] A monograph of the Turdidae, or family of thrushes, 2 vols., 1902. London.

GEOKICHLA LITSIPSIRUPA SIMENSIS (Rüppell)

Merula (*Turdus*) *simensis* Rüppell, Neue Wirbelthiere, zu der Fauna von Abyssinien gehörig, etc., Vögel, p. 81, pl. 29, fig. 1, 1840: Angethat, Ethiopia.

Specimens collected:

5 males, 3 females, 1 unsexed, Adis Abeba, Ethiopia, December 30, 1911–January 12, 1912.
1 female, near Ankober, Ethiopia, January 20, 1912.
3 males, 1 female, Arussi Plateau, Ethiopia, 7,000–10,000 feet, February 17–27, 1912.
1 male, 1 female, Cofali, Ethiopia, March 2, 1912.
1 male, near Aletta, Sidamo, Ethiopia, March 6, 1912.

The ground-scraper thrush is another of those birds that occur in southern Africa (north to the Katanga, Nyasaland, and southwestern Tanganyika Territory) and also in Ethiopia, but not in the intervening area. Three forms are recognized, as follows:

1. *G. l. litsipsirupa:* Zululand, Transvaal, Orange Free State, and Damaraland north to Southern Rhodesia and southern Angola.
2. *G. l. stierlingi:* The Malanje district of northern Angola east through Northern Rhodesia and the Katanga to northern Nyasaland and the Iringa district of Tanganyika Territory. This race, of which I have seen no material, is said to resemble the typical one, but has a shorter bill, the under wing coverts and inner edges of the remiges somewhat darker, and the throat and sides of the body more strongly washed with rusty yellow.
3. *G. l. simensis:* Southern Eritrea, Bogosland, and Ethiopia south to Gardula and the Kullo district. Somewhat browner above than *litsipsirupa*, the under wing coverts darker, the bill shorter (as in *stierlingi*), and the under parts more washed with rusty yellow.

The present specimens are all in rather worn plumage and show considerable variation in color. Some are almost as white below as South African birds while others are very yellowish. Extremely abraded birds may be as grayish above as typical *litsipsirupa*, so care must be used in comparing specimens of the different races.

The size variations of the 18 birds collected by the Frick expedition are shown in table 26.

This thrush is a bird of the highlands. Blanford[24] found it to be "common throughout the highlands, but not observed below 5,000 or 6,000 feet elevation." In Eritrea, Zedlitz[25] found it from about 7,500 feet up. Erlanger[26] writes that it lives near water, not being found in arid places. He found a nest with three fresh eggs on March 26 at Gara Mulata near Harrar. The breeding season appears to be later in northern Ethiopia and Eritrea—about June and July.

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[24] Observations on the geology and zoology of Abyssinia, etc., p. 357, 1870.

[25] Journ. für Orn., 1911, p. 76.

[26] Journ. für Orn., 1905, p. 740.

Table 26.—*Measurements of 18 specimens of* Geokichla litsipsirupa simensis *from Ethiopia*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Adis Abeba	Male	136.0	71.0	24.0	37.0
Do	do	133.0	74.0	24.0	38.0
Do	do	134.0	74.0	24.0	34.5
Do	do	131.0	68.0	24.0	35.5
Do	do	131.0	72.0	25.0	38.0
Do	do	135.0	71.0	25.0	37.5
Arussi Plateau, 10,000 feet	do	139.0	76.0	23.0	38.0
Do	do	138.0	75.0	23.0	36.5
Arussi Plateau, 9,000 feet	do	131.0	71.5	24.5	35.0
Cofali	do	136.0	71.5	23.0	37.0
Near Aletta	do	132.5	71.5	23.0	37.0
Adis Abeba	Female	125.0	71.0	23.0	--------
Do	do	132.5	74.0	23.5	36.0
Do	do	129.0	67.5	24.0	35.5
Near Ankober	do	129.0	71.0	24.0	36.0
Arussi Plateau, 7,000 feet	do	128.0	67.0	24.5	34.5
Cofali	do	131.0	71.0	23.0	35.0
Adis Abeba	--------------	132.0	70.0	25.0	37.0

MONTICOLA SAXATILIS (Linneaus)

Turdus saxatilis Linnaeus, Syst. Nat., ed. 12, vol. 1, p. 294, 1766: Mountains of Switzerland, Austria, and Prussia; Switzerland (Hartert).

Specimens collected:

2 immature males, 4 immature females, Dire Daoua, Ethiopia, November 27–December 19, 1911.
1 adult male, Ethiopia, March 5, 1912.
1 immature female, Gidabo River, Ethiopia, March 17, 1912.
1 adult female, Bridge south of Lake Abaya, Ethiopia, March 23, 1912.

The European rock thrush is a regular and common migrant and winter visitor in Ethiopia and Kenya Colony. Meinertzhagen[27] has summarized what is known of its wanderings in eastern Africa, and, more recently, Grote[28] has added to this account. In eastern Africa the birds get as far south as the Ubena highlands and the Morogoro area, Tanganyika Territory.

According to Meinertzhagen, this bird begins to arrive in northern Somaliland in the second half of September, the first birds being young ones; adults appear early in October. Likewise, the species reaches the Sudan in September, but I am not aware of any records for Ethiopia earlier than October. Here again, as in the case of so many palearctic migrants, the routes followed seem to be the Nile Valley and the Red Sea, and the intervening area receives chiefly the overflow from these paths rather than a direct flight of migrants.

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[27] Ibis, 1922, p. 13.

[28] Mitteil. Zool. Mus. Berlin, vol. 16, pt. 1, pp. 38–39, 1930.

In Kenya Colony the birds arrive around Nairobi and the Rift Valley in the last week of October.

In spring the majority leave in March, but birds have been found in Ethiopia until practically the end of April.

The birds molt in their winter quarters from December to March, but this molt is incomplete as it does not affect the remiges and rectrices.

Mearns noted a few individuals at Gidabo River, March 15–17; at the Abaya Lakes, March 18–26, and between the Abaya Lakes and Gardula, March 26–29. After that he saw no more.

Roberts[29] has split the genus *Monticola* into four, establishing *Petrornis* for *M. rupestris*, *Colonocincla* for *M. brevipes*, and *Notiocichla* for *M. explorator*. I cannot see any advantage in this splitting, as the forms in question are not really generically separable.

PETROPHILA RUFOCINEREA RUFOCINEREA (Rüppell)

Saxicola rufocinerea Rüppell, Neue Wirbelthiere, zu der Fauna von Abyssinien gehörg, etc., Vögel, p. 76, pl. 27, 1837: Simien Province, Ethiopia.

Specimens collected:

1 unsexed (male?), Ourso, Ethiopia, November 15, 1910. (Ouellard Coll.)
1 male, Serre, Ethiopia, February 13, 1912.
1 female, Hawash River, Ethiopia, February 13, 1912.
2 females, Gidabo River, Ethiopia, March 16–17, 1912.
1 immature male, 1 adult female, Gato River near Gardula, Ethiopia, April 12–13, 1912.
1 male, Sagon River, Ethiopia, May 19, 1912.

Soft parts: Iris dark brown; bill all black; feet and claws brownish black.

The birds from eastern Ethiopia (Hawash River and Ourso) have wider dark tips to the rectrices than do the Shoan birds. This is of interest in that it is in just this character that the birds of southeastern Arabia, the race *sclateri* Hartert, differ from typical *rufocinerea*.

In his description of *sclateri*, Hartert[30] writes that there "is probably a third race in East Africa. A male collected by William Doherty on the Escarpment, Kikuyu Mountains, has the brown on the inner web of the outer rectrices nearly 15 mm wide, and a wing of about 90 mm. A female from the same place has also rather much brown on the lateral rectrices, while two young females are rather brown on the upper side. More material will very likely show the Kikuyu bird to belong to a third sub-species, for it can hardly be the

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[29] Ann. Transvaal Mus., vol. 8, p. 228, 1922.
[30] Nov. Zool., vol. 24, pp. 459–460, 1917.

Arabian form, and its habitat is also far away from Abyssinia and North Somaliland."

I have seen no Kikuyu birds, but it may be noted that van Someren[31] obtained two birds at Naivasha, which, he writes, agree with the Arabian form *sclateri* and not with Doherty's birds.

There are three forms of this rock thrush, as follows:

1. *P. r. rufocinerea:* The highlands of British Somaliland, Bogosland, and of Ethiopia from Tigre to southern Shoa, and to northern Uganda and to Mount Elgon.

2. *P. r. sclateri:* The highlands of Yemen, southwestern Arabia. This form is similar to the typical one, but has wider dark tips on the outer rectrices (10–14 mm wide in *sclateri;* 1 or 2–7 mm in *rufocinerea*).

3. *P. r. tenuis:* Mount Lololokui, northern Kenya Colony. Similar to *sclateri* in the width of the dark tips of the rectrices but definitely paler, especially on the breast and abdomen, than either of the other races. This difference appears to be more marked in males than in females.

Zedlitz[32] suggests that typical *rufocinerea* is a relatively pale form (with narrow dark rectricial tips) inhabiting northern Ethiopia and Eritrea, while the birds of southern Ethiopia, south through northeastern Uganda to Mount Elgon and to Navisha are darker and may be a valid, undescribed race. If so, the birds from Gidabo River, Gato River, and Sagon River would belong to the darker form. I feel that Zedlitz is probably correct, but in the absence of typical Simien material I have to let the matter rest as it is.

The dimensions of the present seven adults and of three specimens of *tenuis* are shown in table 27.

Von Heuglin[33] writes that the altitudinal range of this bird is from 1,000 to 10,000 feet above the sea in Eritrea and northern Ethiopia. Jackson[34] found it plentiful in the Mau Plateau in western Kenya Colony, above 6,000 feet.

Erlanger[35] found this bird to be rather local in its distribution. It was not uncommon around Harrar, but in the Shoan lakes district and in Arussi-Gallaland it was very scarce. Blanford[36] found it "by no means rare on the highlands and found as low as about 4,500 feet. It appears to be a permanent resident, as I saw it in the hills close to the Anseba valley, in pairs, in July."

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[31] Nov. Zool., vol. 29, p. 241, 1922.

[32] Journ. für Orn., 1911, pp. 77–78.

[33] Ornithologie Nordost-Afrika's etc., vol. 1, pp. 369–370, 1869.

[34] Ibis, 1901, p. 75.

[35] Journ. für Orn., 1905, p. 743.

[36] Observations on the geology and zoology of Abyssinia, etc., p. 358, 1870.

TABLE 27.—*Measurements of 10 specimens of* Petrophila rufocinerea

P. R. RUFOCINEREA

Locality	Sex	Wing	Tail	Culmen	Tarsus
ETHIOPIA:		*Mm*	*Mm*	*Mm*	*Mm*
Ourso	Male	86.0	63.0		24.0
Serri	do	85.0	65.5	21.0	25.0
Sagon River	do	88.0	64.5	23.5	24.5
Hawash River	Female	83.5	66.0	19.5	22.5
Ribado River	do	79.0	56.0	19.0	24.0
Do	do	82.0	60.0	19.0	24.0
Gato River	do	80.0	58.0	19.5	23.0

P. R. TENUIS

Locality	Sex	Wing	Tail	Culmen	Tarsus
KENYA COLONY:					
Mount Lololokui	Male	84.0	63.0	21.0	23.5
Do	Female	78.0	57.5	21.0	23.0
Do	do	79.0	59.5	20.0	22.5

OENANTHE OENANTHE OENANTHE (Linnaeus)

Motacilla oenanthe LINNAEUS, Syst. Nat., ed. 10, p. 186, 1758: Europe; restricted type locality, Sweden.

SPECIMENS COLLECTED: 1 unsexed, Lake Abaya, Ethiopia, March 18, 1912.

The main migration route followed by the European wheatear appears to be the Nile Valley, and the result is that the bird is commoner in the Sudan, Uganda, and Kenya Colony than in Ethiopia. However, it is a regular winter visitor in the latter country and also in Somaliland. Chapin[37] has graphically depicted what is known of the wanderings of this form, and Grote [38] has further elaborated this subject.

A long-billed race, *rostrata*, also winters in northeastern and eastern Africa. Sclater [39] does not mention *rostrata*, or *argentea* either, but both winter in eastern Africa.

OENANTHE LEUCOMELA LEUCOMELA (Pallas)

Motacilla leucomela PALLAS, Acad. Sci. Imp. Petropolitanae, Novi Comm., vol. 14, p. 584, pl. 22, 1771: Lower Volga.

SPECIMENS COLLECTED:

4 males, 1 female, Dire Daoua, Ethiopia, November 29–December 20, 1911.
1 female, Adis Abeba, Ethiopia, January 2, 1912.
1 male, Sadi Malka, Ethiopia, January 30, 1912.
1 female, Serre, Ethiopia, February 13, 1912.
1 male, 1 female, Arussi Plateau, Ethiopia, February 14–20, 1912.
1 male, White Lake Abaya, Ethiopia, March 22, 1912.

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[37] Amer. Nat., vol. 57, p. 119, 1923.
[38] Mitteil. Zool. Mus. Berlin, vol. 16, pt. 1, pp. 40–41, 1930.
[39] Systema avium Æthiopicarum, pt. 2, pp. 450–451, 1930.

According to Sclater and Mackworth-Praed[40] the Cyprian race *cypriaca* also occurs in northeastern Africa in winter. It is said to be distinguished by its deeper coloration and shorter wing (84–89 mm as against 94–96 mm in *leucomela*). One of the males and the female from Dire Daoua are small, having wings measuring 88 and 89 mm, respectively, but they do not differ in color from the others with wings of 91–98.5 mm). I therefore consider them as *leucomela.*

Grote[41] finds that the pied wheatear winters from Arabia and the Red Sea coast from Eritrea southward through Ethiopia, northern and southern Somaliland, the Anglo-Egyptian Sudan, Uganda, and Kenya Colony to northern Tanganyika Territory. The birds begin to arrive in September and October and leave for the north in March and April.

OENANTHE LUGUBRIS (Rüppell)

Saxicola lugubris RÜPPELL, Neue Wirbelthiere, zu der Fauna von Abyssinien gehörig, etc., Vögel, p. 77, pl. 28, fig. 1, 1837; Simien, Abyssinia.

SPECIMENS COLLECTED:

1 female, Gada Bourca, Ethiopia, December 25, 1911.
1 male, Ankober, Ethiopia, January 22, 1912.

The Abyssinian black chat appears to be a rather scarce bird in the southern part of its range, as evidenced by the comments of several fairly recent writers, such as Erlanger and Zedlitz, and by Mearns's manuscript comment that this bird was found sparingly from Gada Bourca to Adis Abeba. In northern Ethiopia and Bogosland it is commoner. Thus, Blanford[42] saw it "frequently on the highlands, and obtained several specimens. It is a constant resident, as I shot birds in May, when all true Saxicolae had left. I saw it in the passes at about 3,000 feet above the sea, but not so commonly as at a higher elevation. It keeps more to bushes and rocks than the true Saxicolae, in this resembling *S. melanura.*" On the other hand, Zedlitz[43] found it to be anything but abundant in Eritrea. He suggests that it may be somewhat migratory, going south in winter and reappearing in the breeding range in the second half of March. The present two specimens, taken in December and January, show the species remains in Ethiopia throughout the year, but these two may be wintering birds that would have bred in Bogosland or the northern Ethiopian highlands. Erlanger[44] collected two pairs between Harrar and Adis Abeba on September 23.

The male is in worn plumage and has the upper and under tail coverts practically white; the female is in fresher plumage and has these parts pale buffy orange. The dimensions of the two specimens are as follows: Male—wing, 80; tail, 54; culmen from base, 17; tarsus, 23 mm. Female—wing, 78.5; tail, 55; culmen from base, 16; tarsus, 22 mm.

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[40] Ibis, 1920, p. 851.

[41] Mitteil. Zool. Mus. Berlin, vol. 16, p. 42, 1930.

[42] Observations on the geology and zoology of Abyssinia, etc., p. 363, 1870.

[43] Journ. für Orn., 1911, p. 85.

[44] Journ. für Orn., 1905, p. 748.

OENANTHE ISABELLINA (Temminck)

Saxicola isabellina Temminck, Nouveau recueil de planches coloriées d'oiseaux, etc., livr. 79, pl. 472, fig. 1, 1829: Nubia.

Specimens collected:

1 female, Djibouti, French Somaliland, November 23, 1911.
7 males, 9 females, Dire Daoua, Ethiopia, November 29–December 20, 1911.
1 female, Gada Bourca, Ethiopia, December 26, 1911.
1 mile, Adis Abeba, Ethiopia, January 14, 1912.
1 male, 2 females, Hawash River, Ethiopia, February 6–9, 1912.
1 female, Serre, Ethiopia, February 14, 1912.
1 female, Loco, Ethiopia, March 13, 1912.

The isabelline chat is a regular and common winter visitor throughout the regions traversed by the Frick expedition. The Massai steppes appear to be the southern limit of its winter range.

These birds undergo a complete molt while still in their European and Asiatic breeding quarters, and only a very incomplete ecdysis, involving some of the body feathers, takes place in the winter range in Africa. Occasionally, however, the postnuptial molt is delayed until after the bird has arrived in Africa. Thus, a male taken at Dire Daoua on December 10 is renewing its rectrices.

OENANTHE BOTTAE FRENATA (Heuglin)

Saxicola frenata Heuglin, Journ. für Orn., 1869, p. 158: Mensa, Abyssinian Highlands.

Specimens collected:

2 males, Adis Abeba, Ethiopia, January 10–11, 1912.
1 male, near Saleish, Ethiopia, January 18, 1912.
2 males, 2 females, Arussi Plateau, 8,500–10,500 feet, Ethiopia, February 22–27, 1912.
2 males, Cofali, Ethiopia, March 2, 1912.

Soft parts: Iris grayish brown; bill and feet black.

Sclater[45] has straightened out the complicated synonymy of the forms of *Oenanthe bottae*, and the arrangement given by him[46] appears to be correct.

The present form occurs in the highlands of Ethiopia from Bogosland to Djamdjam, Shoa, and Arussi-Gallaland. Blanford[47] met with this bird "on the very highest portions of the Wadela Plateau, near Saintora and Gazoo, at an elevation of 10,500 feet above the sea; there it abounded. Von Heuglin states that he has seen it at a much lower elevation also."

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[45] Bull. Brit. Orn. Club, vol. 49, pp. 17–19, 1928.

[46] Systema avium Æthiopicarum, pt. 2, pp. 455–456, 1930.

[47] Observations on the geology and zoology of Abyssinia, etc., p. 362, 1870.

The two specimens from Cofali are slightly darker, more fuscous-black, less brownish, above than the other males, but the difference is not great and may be accounted for by the fact that they are in worn plumage. In fresh feathering the upper wing coverts and the inner secondaries have pale tawny-buff tips, which wear off leaving uniform fuscous feathers in abraded birds.

A male from Adis Abeba is considerably darker below than any of the others, and approaches the Sudanese race *heuglini* in color. It differs from the rest of the series in that the light loreal stripe is pale buffy and not white.

The measurements of the present nine specimens are given in table 28.

The female taken at February 22 in the Arussi Plateau was one of a pair shot together. The male escaped into a hole in the ground in the open plain where the birds were seen. This might appear to indicate that the breeding season is early in the spring, but Erlanger [48] writes that the nesting time is in the middle of June and early in July. He collected a bird in breeding condition early in July.

TABLE 28.—*Measurements of nine specimens of* Oenanthe bottae frenata *from Ethiopia*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Adis Abeba	Male	97.5	58.5	19.0	33.0
Do	do	98.0	59.0	19.0	
Near Saleish	do	98.5	62.0	19.5	34.0
Arussi Plateau	do	99.5	65.0	20.5	32.5
Do	do	103.0	65.0	19.5	34.0
Cofali	do	98.0	61.5	18.0	33.0
Do	do	100.0	62.0	20.0	32.0
Arussi Plateau	Female	96.0	61.0	19.0	33.0
Do	do	93.0	61.0	19.0	31.0

CERCOMELA MELANURA LYPURA (Hemprich and Ehrenberg)

Sylvia lypura HEMPRICH and EHRENBERG, Symbolae physicae, etc., folio ee, 1828: Abyssinia, i. e., eastern Eritrea (Neumann and Zedlitz).

SPECIMENS COLLECTED:

1 male, Dire Daoua, Ethiopia, November 27, 1911.
1 male, Dire Daoua, Ethiopia, December 20, 1911 (von Zulow).
1 female, Sadi Malka, Ethiopia, February 2, 1912.

In studying the forms of the genus *Cercomela*, I have been guided chiefly by Lynes's excellent review,[49] but also by Neumann and Zedlitz's notes.[50] Sclater [51] follows Lynes.

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[48] Journ. für Orn., 1905, p. 746.
[49] Ibis, 1926, pp. 389–397.
[50] Journ. für Orn., 1913, pp. 362–370.
[51] Systema avium Æthiopicarum, pt. 2, pp. 456–459, 1930.

The present species has four subspecific forms, of which I have seen only two—the present one and the nominate race. The latter occurs in Palestine and northern Arabia and is pale ashy gray above; the present form, *lypura*, inhabits the Red Sea Province of the Sudan to eastern Eritrea, British Somaliland, and the Hawash Valley in Ethiopia. It has the gray of the back strongly tinged with brownish.

In southwestern Arabia another form, *erlangeri*, with a dark smoky-gray (but not brownish) back, occurs, while in Asben and in north and central Darfur, a light cinnamon-brown backed race, *airensis*, is found.

Of the three specimens listed above, the one collected in November is in fresh plumage; the December bird less fresh; the February specimen much abraded. Their dimensions are as follows: Males—wing, 79, 78; tail, 59.5, 57; culmen, 15.5, 16.5 mm. Female—wing, 77; tail, 60; culmen, 16.5 mm. Neumann and Zedlitz give wing measurements of 76 to 79 mm for males and 71 to 74 mm for females. Their bill measurements (12 to 13 mm) are apparently of the exposed culmen, while mine are from the base of the bill.

I am not aware of any published notes on the breeding season of this rock-chat in Ethiopia, but in the Red Sea Province of the Sudan, Butler[52] found a fledgling only a few days out of the nest on May 7 at Khor Arbot. At this place he found this species was common, especially near streams. The juvenal plumage appears to be similar to the adult stage even to the black rectrices.

CERCOMELA SCOTOCERCA TURKANA van Someren

Cercomela turkana VAN SOMEREN, Bull. Brit. Orn. Club., vol. 40, p. 91, 1920: Turkana country.

SPECIMENS COLLECTED:

1 male, Bodessa, Ethiopia, May 31, 1912.
1 male, Mar Mora, Ethiopia, June 14, 1912.
2 females, 18 miles southwest of Hor, Kenya Colony, July 1, 1912.
4 males, 10 miles south of Lake Rudolf, Kenya Colony, July 9–10, 1912.
2 males, southeast of Lake Rudolf, Kenya Colony, July 11–12, 1912.
2 females, Indunumara Mountains, Kenya Colony, July 14, 1912.

Sclater[53] recognizes five races of the brown-tailed rock-chat. As I have seen only the present series of one of these forms, I follow Sclater's arrangement unquestioningly.

I must confess that I do not understand just what the characters of *turkana* are, as van Someren[54] writes that it resembles the typical form of Eritrea and adjacent parts of the Red Sea Province of the

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[52] Ibis, 1909, p. 399.

[53] Systema avium Æthiopicarum, pt. 2, pp. 457–458, 1930.

[54] Nov. Zool., vol. 29, p. 242, 1922.

Sudan, but is paler, less deep grayish brown, more ashy, with an ochraceous tinge on the crown, and with buffy edges on the rectrices, instead of rusty-rufous ones.

Lynes,[55] on the other hand, characterizes *turkana* as a dark form. On the whole, judging by the present series, which come from the range of *turkana*, it seems that Lynes is correct and van Someren wrong. Recently, van Someren [56] has studied new material of this bird and finds that the range of *turkana* extends from Karamoja to the Northern Guaso Nyiro River. He says:

> There is a further bird, which ranges from the Koroll mountains to Kulal and south to the Northern Guasso Nyiro and is not *turkana*. It is a very dark ashy chocolate-brown, with paler edges to the wing-feathers and rusty buff edges to the rectrices. The lower surface is grayish buff, with a strong vinous tinge on the breast, flanks, and throat. The under tail-coverts are blackish brown with rusty buff edges. They are slightly larger than *turkana*, wings 74–81 against 70–76 mm. A larger series of *turkana* from the type locality is required to clear up the relationship of the two.

It seems that the present birds are these dark ones and not true *turkana*. Lacking adequate material I can not do anything other than call attention to them and to van Someren's statement in the hope that he or someone else with sufficient material may settle the issue.

The size variations of the present series are given in table 29.

The bird from Bodessa has the edges of the rectrices much more rufescent, less buffy, than any of the others. It, and the Mar Mora specimen are in fairly fresh plumage; the remainder of the series are abraded.

TABLE 29.—*Measurements of 12 specimens of* Cercomela scotocerca turkana

Locality	Sex	Wing	Tail	Culmen	Tarsus
ETHIOPIA:		*Mm*	*Mm*	*Mm*	*Mm*
Bodessa	Male	75.0	58.5	14.5	22.0
Mar Mora	do	79.0	59.5	15.0	21.5
KENYA COLONY:					
10 miles south of Lake Rudolf	do	69.0	55.0	14.0	21.5
Do	do	75.5	56.0	14.5	22.0
Do	do	75.0	55.5	15.0	23.0
Do	do	77.0	60.0	15.0	23.0
Southeast of Lake Rudolf	do	77.0	61.0	15.0	22.5
Do	do	80.0	62.5	14.5	23.0
18 miles southwest of Hor	Female	74.0	60.0	15.0	22.0
Do	do	74.0	56.0	14.0	22.5
Indunumara Mountains	do	79.0	60.0	15.0	23.0
Do	do	69.0	51.0	14.0	21.0

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[55] Ibis, 1926, p. 391.

[56] Nov. Zool., vol. 37, p. 378, 1932.

CERCOMELA DUBIA (Blundell and Lovat)

Myrmecocichla dubia Blundell and Lovat, Bull. Brit. Orn. Club, vol. 10, p. 22, 1899: Fontaly, Ethiopia.

Specimens collected: 1 adult (unsexed), Chobi, Ethiopia, December 23, 1911.

This appears to be the fifth known specimen of this rock-chat. Lynes [57] writes that there are two specimens in the British Museum and two in Berlin, all from the middle and upper Hawash Valley (Fontaly, Dire Daoua, and Abassuen). The present example extends the known range westward to Chobi.

The somber rock-chat is the least wide-ranging species in its genus, being wholly confined to the Hawash Valley. If one may judge by the results of the various expeditions that have passed through that area, *dubia* would seem to be a very scarce bird, but this is probably due to the fact that *Cercomela scotocerca enigma* and *C. melanura lypura* are common birds there and the present one is overlooked, as in life the three appear much alike. Thus, Lynes made a special study of this bird before going to Ethiopia and was able to recognize it in the field. He writes that it was "a big upstanding bird, and except for the dark brown colour of its tail and body, looked and behaved like an enlarged edition of the *melanura*."

The single specimen collected has a wing length of 83 mm and a tail length of 70 mm. Unfortunately, the tip of the bill was shot off, so I can not give its culmen length. The bird is in worn plumage.

PINAROCHROA SORDIDA SCHOANA Neumann

Pinarochroa sordida schoana Neumann, Orn. Monatsb., vol. 13, p. 78, 1905: Abuje, Gindeberet, Shoa.

Specimens collected:
- 4 males, 3 females, Adis Abeba, Ethiopia, December 31, 1911–January 10, 1912.
- 5 males, 7 females, Arussi Plateau, Ethiopia, February 15–29, 1912.
- 1 male, Cofali, Ethiopia, March 3, 1912.

At the same time that he described *schoana*, Neumann also named the birds of the Djamdjam Mountains east of the Abaya lakes *djamdjamensis*. These were said to differ from *schoana* in having the underparts purer and brighter reddish isabelline; the auriculars dark brown sharply set off from the paler cheeks; the upper wing coverts with more whitish, less buffy, edges; the black tips of the rectrices usually broader than in *schoana*. The present specimens from the Arussi Plateau and from Cofali should be *djamdjamensis* if we may judge from geography. However, these 20 birds show no constant characters by which they differ from the 7 Adis Abeba examples

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[57] Ibis, 1926, p. 396.

(*schoana*). Consequently, I do not recognize *djamdjamensis*, a conclusion in which I am anticipated by Sclater.[58] Hartert, however,[59] considers it a valid form.

I have seen no material of the nominate form or of the Harrar race *erlangeri*, but they both appear to be valid. On Mount Kilimanjaro a distinct form *hypospodia* is found. The birds inhabiting Mount Elgon are very similar to *ernesti*, the race found on Mount Kenya and the Aberdare Range, but have been separated by Madarász [60] under the name *rudolfi*. Unfortunately, Madarász compared *rudolfi* only with *hypospodia* and not with *ernesti*. Of recent authors the only one who recognizes *rudolfi* is Granvik,[61] who also failed to compare his birds with *ernesti*. Van Someren[62] had no Elgon material, but wrote that *rudolfi* "appears to be very close to *ernesti*."

It seems, then, that there are five valid races, as correctly given in his list by Sclater. I assume that he has examined the type of *schoana* and found it to be the same as *djamdjamensis*, as other writers have synonymized *schoana* with *sordida* and used the name *djamdjamensis* for the south Shoan birds. Still, Neumann [63] records seven specimens from Adis Abeba as *schoana* and others from farther south as *djamdjamensis*.

The size variations of the present series (table 30) indicate a slight average difference between the birds from Adis Abeba and those from the Arussi Plateau (*djamdjamensis*).

Practically all these birds are in fresh plumage. One specimen from Adis Abeba (January 2) is in molt. On February 15 Mearns shot a male and female, which he recorded as a mated pair. The only other data available as to the breeding season are the observations of Erlanger,[64] who observed parents with fledged young early in August.

This hill chat is wholly a bird of the mountains and occurs up to at least 11,000 feet in the Arussi country. Mearns collected specimens at altitudes of 8,500 to 11,000 feet in that region. Adis Abeba is, of course, lower down, but probably the lower limits of the bird's range must be about 6,000 feet. On Mount Kenya it is known from 10,700 to 14,000 feet; on Mount Elgon from 12,000 feet to the summit (a little over 14,000 feet); on Mount Kilimanjaro, from 10,000 to 14,000 feet. No form of this bird has been found on Ruwenzori or Mount Cameroon.

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[58] Systema avium Æthiopicarum, pt. 2, p. 461, 1930.

[59] Nov. Zool., vol. 27, p. 471, 1920.

[60] Orn. Monatsb., vol. 20, p. 175, 1912.

[61] Journ. für Orn., 1923, Sonderheft, p. 251.

[62] Nov. Zool., vol. 29, p. 243, 1922.

[63] Journ. für Orn., 1905, p. 292.

[64] Ibid., p. 745.

TABLE 30.—*Measurements of 20 specimens of* Pinarochroa sordida schoana *from Ethiopia*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Adis Abeba	Male	76.0	52.5	13.0	29.5
Do	do	75.0	55.5	13.5	28.0
Do	do	79.5	57.0	13.0	29.5
Do	do	75.0	52.0	14.0	28.0
Arussi Plateau	do	69.0	42.0	14.5	29.0
Do	do	67.0	42.5	14.0	30.5
Do	do	72.0	46.0	13.5	29.5
Do	do	72.0	46.0	14.0	29.5
Do	do	77.0	51.0	14.0	30.0
Cofali	do	69.0	47.0	13.5	28.5
Adis Abeba	Female	71.0	48.5	13.0	28.5
Do	do	77.0	54.0	12.5	30.0
Do	do	69.0	47.0	13.5	29.0
Arussi Plateau	do	65.0	38.0	13.5	29.5
Do	do	72.0	44.0	14.0	30.0
Do	do	70.0	41.0	14.5	29.5
Do	do	68.5	43.0	13.5	29.0
Do	do	70.0	44.0	14.0	28.5
Do	do	70.0	45.0		28.0
Do	do	72.0		14.0	30.5

Since the above account was written, Peters and Loveridge [64a] have actually compared topotypical specimens of *rudolfi* with topotypes of *ernesti* and found them to be separable, the former having darker ear coverts and browner, less grayish, superloreal stripes.

PENTHOLAEA MELAENA (Rüppell)

Saxicola melaena RÜPPELL, Neue Wirbelthiere zu der Fauna Abyssinien gehörig, etc., Vögel, p. 77, pl. 28, 1837: Alegua Mountain, Agami Province, Abyssinia.

SPECIMENS COLLECTED: 1 male, 1 female, Ankober, Ethiopia, January 21–22, 1912.

Rüppell's chat is a bird of the Ethiopian highlands from Senafe to Shoa. It appears to be relatively scarce, or rather local, as a number of good collectors have failed to meet with it. Neumann [65] obtained but a single specimen; Erlanger never saw it; Mearns only got two. Neumann found it at an altitude of about 3,000 meters. Blanford [66] writes that it is "pretty common on the highlands, keeping much to rocky places amongst bushes."

Nothing appears to be known of the habits of this bird. Both specimens collected by the Frick expedition are in somewhat worn condition and afford no real clue as to breeding or molting season. Their dimensions are as follows: Male—wing, 86; tails, 57; culmen, 18; tarsus, 28.5 mm. Female—wing, 86; tail, 58; culmen ——; tarsus, 26.5 mm.

[64a] Bull. Mus. Comp. Zool., vol. 79, p. 178, 1936.

[65] Journ. für Orn., 1906, pp. 288–289.

[66] Observations on the geology and zoology of Abyssinia, etc., p. 361, 1870.

THAMNOLAEA CINNAMOMEIVENTRIS SUBRUFIPENNIS Reichenow

Thamnolaea subrufipennis REICHENOW, Journ. für Orn., 1887, p. 78: Near Ussure, Kondoa, Irangi district, Tanganyika Territory.

SPECIMENS COLLECTED: 1 male, Gardula, Ethiopia, March 27, 1912.

The cliff-chat ranges from the Cape Province to Bogosland, southern Eritrea, west to the French Sudan. The ranges of the races as given by Sclater[67] seem to be correct. The present form occurs from Nyasaland north through Tanganyika Territory, Kenya Colony, Uganda, to the Gaima Hills in the northeastern Belgian Congo and the Mongalla Province of the Sudan, and to southwestern Ethiopia north to southern Shoa. This race has the tail feathers reddish brown basally and the upper tail coverts entirely reddish brown. In the northern half of Ethiopia (from Harrar to Tigre) and in Bogosland it is replaced by the form *albiscapulata*, which differs in having the long central upper tail coverts broadly tipped with black. The nominate form of southern Africa differs from both in having the rectrices black basally. On the upper waters of the Niger a fourth race, *bambarae*, occurs. This form, which I have not seen, is said to resemble *subrufipennis*, but differs from it in having the rufous color less extensive on the rump and on the breast in both sexes; in having the black of the male less deep a black; in having the white feathers of the bend of the wing of the male not wholly white, but particolored black and white; and in having the slaty breast feathers of the female with blackish shaft streaks.

Neumann[68] has described a race *usambarae* from the Usambara Mountains in northern Tanganyika Territory. This form is said to resemble *subrufipennis* but to lack the white posterior border of the black pectoral area; in other words, the black of the breast and the rufous-brown of the abdomen are not separated by a narrow band of white. Grote[69] adds that the brown of the abdomen and rump is darker in *usambarae* than in *subrufipennis.* Sclater considers *usambarae* as "very doubtfully separable." I have seen no birds from the Usambara Range, but a male from the Uluguru Mountains is typical *subrufipennis.* A female taken in the Uluguru Mountains has the brown of the rump and abdomen much darker than the male, but this seems to be the usual thing in *subrufipennis*, according to Reichenow.[70] I have not seen any females from elsewhere to compare it with.

An additional, but also somewhat inconclusive, bit of evidence against the validity of *usambarae* is furnished by van Someren, who states[71] that he finds "very little difference between the Uganda and

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[67] Systema avium Æthiopicarum, pt. 2, p. 463, 1930.

[68] Orn. Monatsb., vol. 22, p. 11, 1914.

[69] Journ. für Orn., 1921, p. 137.

[70] Die Vögel Afrikas, etc., vol. 3, p. 792, 1905.

[71] Nov. Zool., vol. 29, p. 243, 1922.

Kilimanjaro birds." The latter refers not to Mount Kilimanjaro itself, on which mountain the birds seem to be absent, but to the general region thereabouts, which would come very close to the Usambara Range.

The present specimens are in fresh plumage (the Gardula bird is so badly damaged by shot that it hardly seems so), and have the following dimensions: Wing, 112, 113; tail, 92, 93; culmen, 21.5, ——; tarsus, 28, 30 mm, respectively. A male from Mount Garguess is slightly smaller (wing, 109 mm). It appears that fresh plumage signifies that the birds had just finished breeding, as Granvik[72] found a female with nestlings on Mount Elgon on June 3, and the parent was in molt at the time. "The bird", he says, "had its nest in an inaccessible position under the large rocks and could reach the nest by different ways, in which I heard the nestling twittering." Granvik found this bird but once on Mount Elgon. Van Someren records it as not very common in Kenya Colony and Uganda.

THAMNOLAEA CINNAMOMEIVENTRIS ALBISCAPULATA (Rüppell)

Saxicola albiscapulata Rüppell, Neue Wirbelthiere, zu der Fauna Abyssinien gehörig, etc., Vögel, p. 74, pl. 26, fig. 1, 1837: Abyssinia.

Specimens collected: 1 female, Ourso, Ethiopia, September 13, 1910.

This specimen was obtained from M. Ouellard by the Frick expedition. It is in very abraded condition, but it shows the characters of the race—black tips to the long central upper tail coverts.

There is some confusion in the published statements as to the range of this bird. Von Heuglin[73] states that it lives at altitudes of from 1,500 to 3,000 meters above the sea, while Blanford[74] saw it "from the sea-level to the highlands." It was found near water, especially on the rocky banks of streams. In Eritrea, Zedlitz[75] found it at elevations from 1,000 to 1,800 meters. He further observed that its distribution is very local, as he found it numerous only at Ela Bered (1,600 meters); elsewhere only scattered pairs were seen.

This race occurs west to Sennar in the Sudan.

THAMNOLAEA SEMIRUFA (Rüppell)

Saxicola semirufa Rüppell, Neue Wirbelthiere, zu der Fauna Abyssinien gehörig, etc., Vögel, p. 74, pl. 25, 1837: Zana, i. e., Lake Tsana, Ethiopia.

Specimens collected:

1 male, 2 females, Adis Abeba, Ethiopia, January 7–10, 1912.
1 male, Botola, Ethiopia, March 5, 1912.
1 male, 1 female, Aletta, Ethiopia, March 7, 1912.

Soft parts (female): Iris grayish brown; bill and feet black.

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[72] Journ. für Orn., 1923, Sonderheft, p. 250.
[73] Ornithologie Nordost-Afrika's etc., vol. 1, p. 368, 1869.
[74] Observations on the geology and zoology of Abyssinia, etc., p. 360, 1870.
[75] Journ. für Orn., 1911, p. 79.

The white-winged cliff-chat inhabits the highlands of Ethiopia, where it ranges from the neighborhood of Lake Tsana south to the Sidamo country and to Djamdjam in Shoa. It is more of a highland bird than *T. cinnamomeiventris albiscapulata*, although the two do overlap in range. Von Heuglin[76] writes that he found it from 5,000 to 8,000 feet above the sea, in the eastern and central parts of Ethiopia, and as high as 12,000 feet in Gallaland. Erlanger[77] found it in Arussi-Gallaland and between Harrar and Adis Abeba. It was nowhere abundant, being seen in pairs as a rule. On the other hand, Neumann[78] found it very abundant at altitudes of from 2,600 to 3,100 meters.

The three females are quite different *inter se*. One of them, apparently the youngest of the three (all of which are fully grown, not obviously juvenal), has the feathers of the nape, scapulars, interscapulars, and back dark grayish brown barred with fuscous-black; the rump and upper tail coverts tawny, barred with black; the entire underparts, except the rufous under tail coverts and the extreme caudal part of the middle of the abdomen, dusky tawny-buff heavily banded with black. There is a tawny-yellowish stripe down the middle of the throat. The female from Aletta is similar but has the upperparts solid black (quite glossy on the head) and has the breast and upper abdomen darker than in the first mentioned one (from Adis Abeba), but this difference may be due to wear, as the Aletta bird is abraded and the Adis Abeba example is not so much so. Finally, the third one, also from Adis Abeba, is solid black above, but has the middle of the abdomen anterior practically to the posterior margin of the breast, dark bright rufous as in the male. Like the Aletta bird, the thighs are black (they are barred buff and black in the youngest of the three specimens).

Ogilvie-Grant[79] found that a—

> * * * young male from Abyssinia * * * in the British Museum collection, with the upper parts and breast still partially in the spotted nestling-plumage, is moulting direct into the plumage of the adult male—the lower breast, belly and under tail coverts having already become nearly uniform rufous-chestnut, while many feathers of the upper parts, throat, and upper breast are deep black. This bird shows *no trace* of the rufous patch down the middle of the throat. It seems probable, therefore, that though the females ultimately become similar in plumage to the adult male, they do not attain the adult plumage at the first moult * * * an intermediate dress, in which the breast and belly are dusky rufous-buff indistinctly barred with black, being worn for at least a year.

I rather doubt whether the female becomes similar to the adult male, as no other forms of this group exhibit such sexual similarity in adult plumages, but it is obvious that there is an unusual sequence of plumages, the further study of which, when additional material becomes available, should be of interest.

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[76] Ornithologie Nordost-Afrika's, etc., vol. 1, p. 369, 1869.

[77] Journ. für Orn., 1905, p. 744.

[78] Journ. für Orn., 1906, p. 288.

[79] Ibis, 1900, p. 170.

The second of the three females (from Aletta) was apparently the mate of the male killed at the same shot.

According to Neumann, young birds lack the yellowish stripe on the middle of the throat, which is present in older females.

The males have wings measuring from 103.5 to 106.5 mm; the females, 107 to 108 mm. I doubt whether this size difference would be found to hold with a longer series.

On the Hakaki River, near Adis Abeba, Erlanger found a nest with three eggs on August 12. The eggs were milky white, somewhat suffused with greenish, and abundantly speckled with fine pale rusty brown dots. They averaged about 25 by 19 mm.

SAXICOLA TORQUATA AXILLARIS (Shelley)

Pratincola axillaris Shelley, Proc. Zool. Soc. London, 1884, p. 556: Mount Kilimanjaro, 7,000 feet.

Specimens collected: 6 males, 5 females, Escarpment, 7,390 feet, Kenya Colony, September 4–6, 1912.

In studying these birds and those of the other races represented in this collection, I have been guided largely by Meinertzhagen's review of the group.[80] The total material available to me from eastern Africa has been 118 specimens of 7 races. I agree with Sclater[81] that *promiscua* Hartert is a valid race (this was described after Meinertzhagen's revision) and differ from both Sclater and Meinertzhagen in considering the Uganda birds as distinct from Kenyan *axillaris.* I must confess to some hesitancy in naming the Uganda birds, as Meinertzhagen has examined the type of *emmae* Hartlaub, described from Ruganda, and finds it identical with typical *axillaris*, yet all the Ugandan birds I have seen are smaller than Kenyan *axillaris* and have the brown on the breast very much more restricted. For the present I use Hartlaub's name for them in spite of Meinertzhagen's notes.

In the areas traversed by the Frick expedition there are two resident races of this bird, while another form, which breeds in the Urals and Caucasus, occurs in winter in Ethiopia. The two resident forms are *axillaris* and *albofasciata;* the winter visitor is *maura.* The Indian race, *indica*, is also said to winter in Ethiopia, but I know of no definite records. The two resident races are very easily distinguished by the fact that adult males of *albofasciata* completely lack the rufous-brown on the breast, which is so conspicuous in *axillaris.*

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[80] Ibis, 1922, pp. 20–29.

[81] Systema avium Æthiopicarum, pt. 2, p. 468, 1930.

Occasional specimens of the former race have a fringe of chestnut on the lower edge of the black throat patch, formed by rufous tips to the black feathers, but never a really well-developed brown pectoral band. Females of *albofasciata* are darker than those of *axillaris.* The migrant race *maura* is similar generally to *axillaris* but differs in having the rectrices white basally instead of solid black as the resident African birds.

The present race (if we consider the Ugandan birds as *emmae*) inhabits the highlands of Kenya Colony from Mount Elgon, Escarpment, Molo, etc., east to Mount Kilimanjaro. The northern form *albofasciatus* occurs in the highlands of Ethiopia from Adigrat south to Harrar, Arussi-Gallaland, and Kaffa.

The present males have wings measuring 67–74 mm (average 72 mm); females—67–72 mm (69 mm). Five males from Uganda have wings of from 66 to 69 mm.

When in very fresh condition, the black feathers of the back in the males are margined with brown, but with wear the edges are lost and the back becomes uniform black. The present birds are all in fairly fresh plumage.

Granvik[82] has discussed in detail the color variation of this bird. The present birds (all from one locality) are remarkably uniform in color. All are adults, which eliminates the age factor. As is well known, young males have less black and more brown on the throat and breast than older birds.

This little stone-chat is one of the commonest birds throughout its range. The breeding season is in May.

SAXICOLA TORQUATA ALBOFASCIATA Rüppell

Saxicola albofasciata Rüppell, Systematische Uebersicht der Vögel Nordost-Afrika's, p. 39, 1845: Simien Province, Ethiopia.

Specimens collected:

5 males, 4 females, Adis Abeba, Ethiopia, December 31, 1911–January 8, 1912.

1 male, Hakaki, Ethiopia, January 14, 1912.

4 males, 3 females, Arussi Plateau, Ethiopia, February 15–23, 1912.

The Abyssinian stone-chat is a very distinct race. The male lacks all the rufous-chestnut on the breast and has the black of the throat extending over the breast to the anterior margin of the abdomen. Occasionally there is a rufescent fringe to the black breast, but this disappears with wear.

Two of the males from Arussi Plateau have some dark dull brown feathers among the black ones on the crown and occiput. They are otherwise similar to the other specimens and may be in their first adult plumage.

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[82] Journ. für Orn., 1923, Sonderheft, pp. 254–256, pls. 2, 3.

The females vary somewhat in the color of the pale margins of the feathers of the back, the extremes being dull amber-brown, tawny-olive, and grayish earth brown; the last being due to wear.

The males have wing lengths of from 69 to 71 mm; the females, 65 to 71 mm.

This bird lives in the highlands of northern and central Ethiopia. Blanford [83] writes that it—

> is not a rare bird in Abyssinia, * * * I first met with it near Adigrat, where it was far from scarce, and * * * again * * * on some of the passes south of Antalo, and at Lake Ashangi. It was never noticed below about 8000 feet of elevation, but at the same time I did not observe it in the higher plateaux, so that it appears to belong to the temperate rather than to the subalpine fauna.

Erlanger [84] found a nest with four young birds between Harrar and Adis Abeba in April. Neumann [85] writes that birds in breeding condition were taken in Shoa in September. Mearns collected a mated pair on February 15 on the Arussi Plateau. It appears, therefore, that the breeding season must be either a prolonged one or that there are two such seasons, one from February to April and the other in September.

Mearns noted this bird as fairly common along the Hawash River, especially on the upper stretches, January 26 to February 13.

SAXICOLA TORQUATA MAURA (Pallas)

Motacilla maura Pallas, Reise durch verschiedene Provinzen des Russischen Reichs, vol. 2, p. 708, 1773: Ural Mountains, between the Tobol and Irtysh Rivers.

Specimens collected: 1 male, Iron Bridge, Hawash River, February 14, 1912.

The Ural stone-chat winters as far south as southern Ethiopia, Gallaland, northern Somaliland, and southern Arabia. In the Sudan it occurs as far south as Sobat on the White Nile.

Neumann [86] has straightened out the confusion that existed in the literature with regard to the nomenclature of this form. He leaves the question of a resident Abyssinian race *hemprichii* open, but Meinertzhagen [87] has decided the latter is a synonym of *maura* and is not a breeding bird in northeastern Africa.

According to Grote [88] the migration route appears to follow the Red Sea and not the Nile Valley. The form has been taken in Egypt on only a few occasions.

The present specimen is in freshly molted plumage.

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[83] Observations on the geology and zoology of Abyssinia, etc., pp. 365–366, 1870.

[84] Journ. für Orn. 1905, p. 749.

[85] Journ. für Orn., 1906, p. 297.

[86] Ibid., pp. 295–297.

[87] Ibis, 1922, p. 22.

[88] Mitteil. Zool. Mus. Berlin, vol. 16, pt. 1, p. 45, 1930.

SAXICOLA RUBETRA RUBETRA (Linnaeus)

Motacilla rubetra LINNAEUS, Syst. Nat., ed. 10, p. 186, 1758: Europe, restricted type locality, Sweden.

SPECIMENS COLLECTED:

2 females, Lake Abaya, Ethiopia, March 18, 1912.
3 males, 1 female, Gato River, near Gardula, Ethiopia, April 3–16, 1912.

The European whinchat winters throughout the region traversed by the Frick expedition, south as far as southwestern Tanganyika Territory. In the western part of the African Continent it ranges south to Cameroon, and has been recorded a single time from the Southwest African Protectorate. Apparently it is much more of an autumn and spring migrant than a winter resident in Ethiopia, but in Kenya Colony it is a very abundant bird all through the northern winter.

The birds begin flying northward in March, and the migration lasts until well into May in Ethiopia, although it is practically over in April in Kenya Colony.

The birds pass through an incomplete molt while in their winter quarters, the wings and tail alone being unaffected.

COSSYPHA HEUGLINI HEUGLINI Hartlaub

Cossypha heuglini HARTLAUB, Journ. für Orn., 1866, p. 36: "Keren"; error, Wau, Bahr el Ghazal (Heuglin, Ornithologie Nordost-Afrika's, etc., vol. 1, p. 375, 1869).

SPECIMENS COLLECTED:

4 adult males, 3 adult females, Gato River near Gardula, Ethiopia, March 31–May 11, 1912.
1 adult male, 1 adult female, Sagon River, Ethiopia, June 4, 1912.
1 juvenal male, Lekiundu River, Kenya Colony, August 8, 1912.

Sclater [89] considers *occidentalis* as a synonym of *heuglini*.

Gyldenstolpe,[90] Grote,[91] van Someren,[92] and others, however, recognize it as a valid form, with which opinion I agree.

However, in the region immediately concerned in this report, *occidentalis* does not occur, the two races involved being *heuglini* and *intermedia*. The former occurs below 5,000 feet from southern Shoa and the Omo region, southwestern Ethiopia to the Upper White Nile, west through Darfur to the Shari River, south to Uganda and the western half of Kenya Colony to the Ikoma district, Tanganyika Territory. The latter form, *intermedia*, is more of a coastal bird, and occurs from the Juba River south to the Pangani River.

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[89] Systema avium Æthiopicarum, pt. 2, p. 470, 1930.

[90] Kongl. Svenska Vet.-Akad. Handl., p. 161, 1924.

[91] Orn. Monatsb., p. 142, 1924.

[92] Nov. Zool., vol. 29, p. 240, 1922.

C. h. intermedia is darker below, and smaller (wings, male, 90–98; female, 82–88 mm) than *C. h. heuglini* (wings, male, 101–105; female, 89–94 mm).

Grote[93] recorded birds from Mikindani, extreme southeastern Tanganyika Territory, as *C. heuglini*, but I do not know whether these birds are *intermedia* or *euronota.*

The southern race, *euronota*, occurs at Lumbo, Mozambique, in Gazaland; and probably northward along the coast to the Rovuma River. This form is small, like *intermedia*, but more greenish olive above, having practically no slate-blue on the upper back.

In Nyasaland and the Katanga, south through Rhodesia to the Transvaal, the race *subrufescens* occurs. This differs from the others in having the middle pair of rectrices blackish brown instead of olive-brown.

The adult males have wings measuring 101, 101.5, 101.5, 104.5, and 105 mm, respectively; the females, 89, 91, 93, 94 mm.

On April 18, at Gato River, Mearns collected a nest and two eggs together with the female parent. The nest is a deep cup of straws and fine twigs, externally surrounded by coarser twigs and thicker herbaceous stems. The eggs are somewhat like those of *Cossypha caffra* but paler. They are uniform pale wood brown and measure 25 by 17 and 24 by 17 mm.

In Uganda this bird breeds in May, June, and October, according to van Someren.[94]

COSSYPHA SEMIRUFA SATURATIOR Neumann

Cossypha semirufa saturatior Neumann, Orn. Monatsb., vol. 14, p. 7, 1906: Bolagoschana, in Doko, southwestern Ethiopia.

Specimens collected:

1 male, Arussi Plateau, Ethiopia, February 24, 1912.
1 male, Cofali, Ethiopia, March 3, 1912.
1 male, Malke, Ethiopia, March 3, 1912.
1 male, 2 females, Aletta, Ethiopia, March 6–10, 1912.

Sclater[95] does not recognize this form, but it appears to be perfectly valid nonetheless. Inasmuch as his account does not satisfy me, I append a résumé of my findings. The races are as follows:

1. *C. s. semirufa:* The high plateau country of Bogosland south to the vicinity of Adis Abeba.

2. *C. s. saturatior:* The lake region of southern Shoa, and the Omo and Doko areas, southwestern Ethiopia, east to the Arussi Plateau. This and the nominate form are olive-greenish on the upper back and may be told from the next races at a glance by this character. The

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[93] Journ. für Orn., 1913, p. 141.

[94] Ibis, 1916, p. 472.

[95] Systema avium Æthiopicarum, pt. 2, p. 471, 1930.

typical race has the crown dull black, while in *saturatior* it is glossy black.

3. *C. s. donaldsoni:* The Harrar area and eastern Gallaland. This form has the upper back slaty bluish gray.

4. *C. s. intercedens:* The highlands of south-central Kenya Colony—Ukamba and Kikuyu to Mount Kenya and the Aberdare Mountains. This form is similar to *donaldsoni* but has a slightly longer wing according to Sclater. The specimens seen by me have wings of 90 to 94 mm. I have seen no *donaldsoni* material.

It is not generally known that this bird occurs on Mount Kilimanjaro, but I have seen one undoubted example from there (U. S. N. M. no. 118104, adult male collected by W. L. Abbott at 5,000 feet on Mount Kilimanjaro). This bird was listed by Oberholser[96] as *Cossypha heuglini intermedia.* It is the smallest example of *intercedens* seen by me (wing 86 mm) and may be *donaldsoni*, or else an undescribed race, but more material is needed to decide the point.

The measurements of the present series are shown in table 31.

There is some variation in the width of the white superciliary stripes. In one male these stripes are connected across the forehead, while in the rest of the series there is no such frontal connection. The birds are all in fairly fresh plumage.

TABLE 31.—*Measurements of six specimens of* Cossypha semirufa saturatior *from Ethiopia*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Arussi Plateau	Male	84.0	73.0	17.0	33.0
Cofali	do	80.0	69.0	18.5	31.5
Malke	do	84.0	73.5	18.0	31.5
Aletta	do	80.0	71.0	18.0	30.0
Do	Female	78.0	66.0	18.0	28.0
Do	do	71.0	62.0	16.5	28.0

Neumann[97] found this bird to occur at altitudes of from 2,500 to 3,100 meters. Pease[98] met with it frequently in dense bushy thickets and under "creeper-covered earth-banks."

Erlanger[99] found the east Ethiopian form *donaldsoni* nesting during May in the region west of Harrar. He considers this form as a race of *subrufescens* while Sclater, in turn, classes it as a form of *heuglini.*

Besides the specimens procured, Mearns saw this bird at the following places: Abaya Lakes, March 21–26, 4 birds; between the

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[96] Proc. U. S. Nat. Mus., vol. 28, p. 894, 1905.

[97] Journ. für Orn., 1906, p. 283.

[98] Ibis, 1901, p. 660.

[99] Journ. für Orn., 1905, p. 752.

Abaya lakes and Gardula, March 26–29, 2 seen; Gato River near Gardula, March 29–May 17, 100; Kormali village, May 19, 2 birds; Sagon River, June 3–6, 20 noted; Bodessa, June 6, 10 birds, Tertale, June 7–12, 6 seen; El Ade, June 12–14, 2 birds seen.

COSSYPHA SEMIRUFA INTERCEDENS (Cabanis)

Bessornis intercedens CABANIS, Journ. für Orn., 1878, pp. 205, 219: Kitui, Ukamba, Kenya Colony.

SPECIMENS COLLECTED:

2 immature males, Meru Forest, Kenya Colony, August 10, 1912.
1 immature male, Tharaka district, Kenya Colony, August 12, 1912.

The characters and range of this race have already been given and need not be repeated here. The present three birds are all molting into adult plumage. The Tharaka bird is almost finished molting and is practically adult in appearance; the other two still have a number of juvenal upper wing coverts and crown and abdominal feathers left.

COSSYPHA CAFFRA IOLAEMA Reichenow

Cossypha caffra iolaema REICHENOW, Orn. Monatsb., vol. 8, p. 5, 1900: East Africa; Mount Kilimanjaro.

SPECIMENS COLLECTED: 1 adult male, 1 immature male, Escarpment, 7,300 feet, Kenya Colony, September 8–10, 1912.

Cossypha caffra mawensis Neumann[1] is a synonym. This form is said to differ from *iolaema* in having the head and upper back blackish brown. I have examined some 30 birds from the highlands of south-central Kenya Colony and 5 from Kilimanjaro, and find no difference between them. Lönnberg[2] procured specimens at Escarpment, Fort Hall, and Punda Melia, and noted that they were "* * * similar inter se but somewhat darker than a specimen from Kilimanjaro, and have especially less white on the lower side than the latter." The present adult male from Escarpment is exactly like Kilimanjaro birds below, and is slightly paler above than two individuals of typical *iolaema*.

Gyldenstolpe[3] suggests that not only is *mawensis* a synonym of *iolaema* but that the latter is identical with typical South African *caffra*, although he uses the name *iolaema* for his birds from the Kivu district. I have seen 11 South African birds (Cape of Good Hope, Grahamstown, Transvaal, and Natal) and find that they are paler, less slaty, more olivaceous and rusty above than *iolaema*. The southwestern form *namaquensis* I have not seen. Finally, to bring this summary to a close, van Someren[4] suggests that birds from Kagera and Kivu are darker than Kenyan birds and may be a distinct form. Gyldenstolpe's two Kivu birds fail to corroborate this alleged difference.

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[1] Journ. für Orn., 1900, p. 309: Mau, Kenya Colony.
[2] Kongl. Svenska Vet.-Akad. Handl., vol. 47, no. 5, 1911, p. 129.
[3] Kongl. Svenska Vet.-Akad. Handl., 1924, p. 160.
[4] Nov. Zool., vol. 29, p. 239, 1922.

The system adopted by Sclater[5] is therefore correct. It is unfortunate that he does not dispose of *mawensis*, as his omission leaves that name in an uncertain position.

The present race occurs from the highlands of Nyasaland north in the higher districts of Tanganyika Territory and Kenya Colony north to Mount Elgon, and the Mount Kenya district, and also in the Kivu highlands of the eastern Belgian Congo, and to Urundi, and to Ankole, southwestern Uganda. It does not appear to reach Ruwenzori, and, for that matter, I do not know of any records from Mount Kenya itself, although the Smithsonian-Roosevelt expedition obtained a specimen along the Njoro River, in the plains immediately to the west of that mountain.

The young bird collected is in postjuvenal molt; the adult is in fairly fresh plumage. The young bird is peculiar in that the spots on the upper back are practically white, while in several other juvenal birds examined these spots are rich rufous.

This robin-chat is fairly common along the edges of forests and in dense hedgelike thickets. Van Someren[6] found nestlings in December at Nakuru and Nairobi. Fledglings just out of the nest were obtained in May and in October at Kitunga and near Fort Hall by the Smithsonian-Roosevelt expedition.

Mearns recorded seeing 10 of these birds at Escarpment, September 4–12. On Mount Elgon, Granvik[7] found it up to an altitude of 8,500 feet.

CICHLADUSA GUTTATA GUTTATA (Heuglin)

Cratcropus guttatus Heuglin, Journ. für Orn., 1862, p. 300: Bahr el Abiad, i. e., Upper White Nile; type from Aniop, Bahr el Jebel (Neumann).

Specimens collected:

5 adult males, 2 adult females, Gato River near Gardula, Ethiopia, April 8–May 11, 1912.
1 adult male, Sagon River, Ethiopia, June 4, 1912.
1 adult male, Tertale, Ethiopia, June 11, 1912.
1 adult male, Turturo, Ethiopia, June 16, 1912.
1 adult male, 1 juvenal male, 1 adult female, Malata, Ethiopia, June 22, 1912.
1 adult male, Chaffa, Ethiopia, June 23, 1912.
1 adult female, north Lake Rudolf, Kenya Colony, May 23, 1912.
1 juvenal male, Endoto Mountains, south, Kenya Colony, July 23, 1912.
1 adult female, 18 miles south of Malele, Kenya Colony, July 29, 1912.
1 adult female, Tana River, Kenya Colony, August 14, 1912.

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[5] Systema avium Æthiopicarum, pt. 2, p. 475, 1930.
[6] Ibis, 1916, p. 470.
[7] Journ. für Orn., 1923, Sonderheft, p. 257.

Besides the above series, I have examined eight other specimens including some practically topotypical birds. The combined series of 26 birds shows considerable variation and throws some doubt on the validity of *rufipennis* and *mülleri.* The latter race, described from southern Italian Somaliland, is considered a synonym of *rufipennis* by Sclater[8] although Gyldenstolpe[9] considers it a valid race. I have seen no Somaliland birds, but a specimen from Temkaka, Anglo-Egyptian Sudan (therefore unquestionably of the nominate race) is grayer than a series from Gondokoro and Rhino Camp. However, it is definitely a brownish bird, while Zedlitz[10] calls *mülleri* almost a pure gray-backed form.

Some 15 or more years ago Mearns identified the female from the Tana River, listed above, and another female from Mount Garguess as *rufipennis.* I do not find any significant difference between them and females of undoubted *guttata.* I find that plumage wear produces very marked alterations in appearance of these birds, and I would be very cautious in recognizing races. However, inasmuch as my material is so very weak in coastal specimens; I prefer to follow Sclater, and, temporarily at least, recognize *rufipennis.* Van Someren[11] finds that birds from the Taveta-Ukamba region are smaller than others from Lake Rudolf, and "darker on the mantle; the crown is more distinctly streaked and the spotting on the underside more numerous, larger, and blacker. They thus differ considerably from the Lamu race *rufipennis.* Wings 76–83 mm." These birds are probably intermediates between *guttata* and *rufipennis*, as the latter has been obtained not far from Taveta—at Kahe, by W. L. Abbott. Likewise, the birds from the Morogoro and Dodoma area of north-central Tanganyika Territory are intermediate, but, on the whole, nearer to the nominate form.

The adults collected show the range of size variations given in table 32. A male and a female from Gato River (April 8 and May 4) and a female from Malata (June 22) are in molt.

Neumann[12] writes that this bird is an inhabitant of the dense bush along placid streams and lakes in the hot valleys of southern Shoa.

A female shot on April 8 at Gato River contained a fully developed egg.

Besides the specimens listed above, Mearns saw this species on the following occasions: Chaffa villages, June 23–25, 120 birds; Endoto Mountains, July 21–24, 25 seen; river, 24 miles south of Malele, July 29, 10 noted; 40 miles south of Malele, 2 birds seen.

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[8] Systema avium Æthiopicarum, pt. 2, p. 481, 1930.

[9] Arkiv för Zool., vol. 19A, no. 1, p. 54, 1926.

[10] Journ. für Orn., 1916, p. 108.

[11] Nov. Zool., vol. 29, p. 236, 1922.

[12] Journ. für Orn., 1906, pp. 283–284.

TABLE 32.—*Measurements of 16 specimens of* Cichladusa guttata guttata

Locality	Sex	Wing	Tail	Culmen	Tarsus
ETHIOPIA:		*Mm*	*Mm*	*Mm*	*Mm*
Gato River	Male	83.0	--------	18.0	25.0
Do	do	83.5	84.0	19.0	27.5
Do	do	86.0	--------	19.0	27.0
Do	do	83.0	73.5	19.0	28.0
Do	do	86.5	84.0	19.0	26.0
Sagon River	do	85.0	82.0	19.0	27.0
Tertale	do	78.0	80.5	18.5	26.5
Turturo	do	88.5	88.0	--------	28.0
Malata	do	88.0	87.0	20.5	27.0
Chaffa	do	84.0	83.0	20.0	28.0
Gato River	Female	80.0	79.0	19.0	26.0
Do	do	79.0	74.0	18.0	27.0
Malata	do	79.0	77.5	16.0	28.0
KENYA COLONY:					
North of Lake Rudolf	do	82.0	80.0	17.5	26.0
18 miles south of Malele	do	76.0	79.0	16.5	25.0
Tana River	do	78.0	78.5	17.0	26.0

ERYTHROPYGIA LEUCOPTERA LEUCOPTERA (Rüppell)

Salicaria leucoptera RÜPPELL, Systematische Uebersicht der Vögel Nordost-Afrika's, p. 38, pl. 15, 1845: Shoa.

SPECIMENS COLLECTED:

1 adult male, 4 adult females, Dire Daoua, Ethiopia, December 7–22, 1911.
1 adult male, Gidabo village, Ethiopia, March 17, 1912.
1 immature female, Konso, Sagon River, Ethiopia, April 3, 1912.
1 adult female, Gato River near Gardula, Ethiopia, April 22, 1912.
3 adult males, 1 adult female, Anole village, Ethiopia, May 18, 1912.
1 adult male, 2 adult females, Sagon River, Ethiopia, May 19–June 6, 1912.
2 adult males, 1 adult female, Bodessa, Ethiopia, May 21, 1912.
1 adult male, Tertale, Ethiopia, June 11, 1912.
1 adult male, Turturo, Ethiopia, June 15, 1912.
1 adult female, east of Lake Stefanie, Kenya Colony, May 30, 1912.
1 adult male, 2 adult females, 25 miles southeast of Lake Rudolf, Kenya Colony, July 12, 1912.
1 adult male, Indunumara Mountains, Kenya Colony, July 17, 1912.
1 adult male, 1 adult female, camp near Endoto Mountains, Kenya Colony, July 19, 1912.
1 adult female, 18 miles south of Malele, Kenya Colony, July 28, 1912.
1 adult male, 25 miles north of Northern Guaso Nyiro River, Kenya Colony, July 30, 1912.
1 adult male, Tana River, Kenya Colony, August 17, 1912.

The white-winged scrub-robin ranges from Somaliland, the Hawash Valley, Gallaland, and Shoa to the Karamojo district of northeastern Uganda, Turkanaland, and northern Kenya Colony south to the Tana River. In southern Kenya Colony and northern Tanganyika Territory two other forms occur—*brunneiceps*, in south-central Kenya Colony and adjacent parts of Tanganyika Territory, and *vulpina*, of the Teita-Kilimanjaro country. Finally, in the central and southwestern portion of Tanganyika Territory, another subspecies, *sclateri*, is found. Other forms occur elsewhere in Africa.

Van Someren[13] writes that *vulpina* occurs "from the Baringo and Tana district south and west through Ukambani, to the plains east of Kilimanjaro." He refers a specimen from Marsabit to *vulpina*, which race is distinguished by having the gray of the crown somewhat suffused with brownish. I wonder whether van Someren was not misled by youngish birds, which, in first adult plumage, have the crown washed with brown. Thus, a bird from Tertale in southern Shoa, and another from the Tana River have brownish crowns, but the rest of the series is grayish on the top of the head.

Erlanger also noticed similar variation in the grayness and brownness of the crown in his large series from Somaliland and Ethiopia, and even went so far as to decide that *vulpina* was not a valid race.

The size variations of this bird are as follows: Adult males (13 specimens)—wing, 62.5–71.5; tail, 61–72.5; culmen, 15.5–17.5; tarsus, 20–26.5 mm. Adult females (14 specimens)—wing, 63.5–72.5; tail, 63–75; culmen, 14.5–17.5; tarsus, 23–26 mm.

This species is widely distributed in southern Ethiopia, both in the mountains and in the lower regions, where its rich, pleasing song forms a conspicuous part of the general chorus of bird life. It does not occur very high up in the mountains, however.

Erlanger[14] found it breeding in southern Somaliland. In April he found fresh eggs, while in June he observed fledged young, which suggested to him that the bird might be double-brooded.

Mearns noted about 50 of these scrub-robins along the Tana River, August 15–23, and 10 at the junction of that river with the Thika River, August 23–26.

POGONOCICHLA MARGARITATA KENIENSIS Mearns

Pogonocichla cucullata keniensis Mearns, Smithsonian Misc. Coll., vol. 56, no. 20, p. 9, 1911: Mount Kenya, 10,700 feet.

Specimens collected: 1 male, 3 females, Escarpment, Kenya Colony, September 8–10, 1912.

Gyldenstolpe[15] has carefully reviewed the nomenclature and systematics of the white-starred bush-robin, and Sclater[16] has largely followed his conclusions. Unfortunately, I find it impossible to reconcile some of those conclusions with the material I have seen of the races *guttifer*, *keniensis*, *orientalis*, and *helleri*. Both Gyldenstolpe and Sclater consider *keniensis* and *helleri* as synonyms of *guttifer*. I have examined five adults from Kilimanjaro (topotypical *guttifer*) and six from Mount Kenya (topotypical *keniensis*, including the type), the present four from Escarpment, and six adults from Mount Garguess. The Escarpment and Garguess birds agree with those from Mount Kenya, and all differ from the Kilimanjaro birds in being definitely paler, purer yellowish green, less rusty, on the back. I therefore recognize *keniensis* as a valid form.

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[13] Nov. Zool., vol. 29, pp. 236–237, 1922.

[14] Journ. für Orn., 1905, pp. 754–756.

[15] Kongl. Svenska Vet.-Akad. Handl., 1924, pp. 155–158.

[16] Systema avium Æthiopicarum, pt. 2, pp. 486–488, 1930.

With regard to *helleri*, I have examined the unique type and feel that it is probably a synonym of *orientalis*, not of *guttifer*. Its chief distinguishing character, the narrow black tips on the rectrices, is also present in two adults of *orientalis* from the Uluguru Mountains. Unfortunately, no juvenal birds from Mount Mbololo are known, but aside from the characters of the adults of *helleri* and *orientalis*, their geography suggests possible, if not probable, identity. Still, it should be borne in mind that Gyldenstolpe has found the width of the rectricial tips to be a variable character, but at any rate I doubt whether *helleri* could be looked upon as a synonym of *guttifer*. If it is not a distinct race (which is not impossible) and if it is not a synonym of *orientalis*, I should suggest lumping it with *keniensis* rather than with *guttifer*.

After discussing several of the forms of this bush-robin, Gyldenstolpe writes that it would not be surprising "if birds from Usambara, Kilimanjaro, Mount Kenya, and the Highlands of Kenya Colony belonged to one and the same form. But if *Pogonocichla orientalis* really has a plain juvenal dress, as has been stated by Neumann (*in litt.*), we must regard this race distinct and confined to the Hills of Usambara." To this I may add that two juvenal birds from the Uluguru Mountains are unspotted above and have the breast feathers edged with olive-green, not with black as in *guttifer*.

After reading Gyldenstolpe's valuable notes, I have examined Levaillant's plate of "Le Gobe Mouches Etoile"[17] on which Vieillot[18] based his description of *Muscicapa stellata*, and I concur in the conclusion that that name can not be used for the present species. Sundevall's name *margaritata*[19] is therefore the oldest available name. Sclater[20] continues to use Vieillot's name.

Sclater gives the range of *keniensis* (or, as he calls it, *guttifer*) as north to Mount Kenya. However, it occurs considerably farther north, as Heller obtained a series on Mount Garguess north of the Northern Guaso Nyiro River.

This bird is a denizen of the highland forests, and its range is therefore rather broken and discontinuous. It has been found in the following localities—Mount Kenya, Nairobi, Kyambu, Ngong, Elgeyu, Molo, Londiani, Maraquet, the Aberdare Range, and Mount Garguess. On Mount Elgon, another race, *elgonensis*, is found. just as on Mount Kilimanjaro, *guttifer* is the local form.

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[17] Histoire naturelle des oiseaux d'Afrique, vol. 4, pl. 157, 1805.

[18] Nouv. Dict. d'Hist. Nat., vol. 21, p. 468, 1818.

[19] Öfv. Kongl. Vet.-Akad. Förh., 1850, p. 104: Caffraria.

[20] Systema avium Æthiopicarum, pt. 2, p. 486, 1930.

CERCOTRICHAS PODOBE PODOBE (Müller)

Turdus podobe P. L. S. Müller, Natursystem, Suppl., p. 145, 1776: Senegal.

Specimens collected: 1 female, Dire Daoua, Ethiopia, December 21, 1911.

The black bush-robin appears not to have been found before in the Hawash district of Ethiopia, although it is not uncommon in the Eritrean lowlands and in the Red Sea littoral of the Sudan. Sclater [21] considers this bird and *melanoptera* conspecific, but it would seem just as natural to grant the latter full specific standing, as it has plain brownish wings, while *podobe* has a large bright rufous patch on the inner web of each remex.

The present specimen is in fairly fresh plumage and has the following dimensions: Wing, 92; tail, 110.5; culmen, 20; tarsus, 28 mm.

According to von Heuglin, the breeding season in Dongola is from July to August. Zedlitz [22] suggests that this is also true in the Cheren district, southern Eritrea.

PHOENICURUS PHOENICURUS PHOENICURUS (Linnaeus)

Motacilla phoenicurus Linnaeus, Syst. Nat., ed. 10, p. 187, 1758: Europe; Sweden (Hartert).

Specimens collected: 1 unsexed, Dire Daoua, Ethiopia, September 9, 1911.

This specimen was obtained from M. Ouellard.

Two races of the European redstart occur in Ethiopia in winter—the typical one, and the eastern form *samamisious*, which may be told very easily by the white outer webs of the primaries.

The typical form winters south to southwestern Arabia, Ethiopia, Turkanaland, southern Sudan, etc., west to the Gold Coast. It has been taken as far south as Bukoba, on the west shore of Lake Victoria, but this is unusual. It does not appear to have been found in Kenya Colony or adjacent parts of southern Uganda.

It is not impossible that a third form, *turkestanicus* Sarudny, may winter in eastern Africa, according to Grote.[23]

PHOENICURUS PHOENICURUS SAMAMISICUS (Hablizl)

Motacilla samamisica Hablizl, Neue Nordische Beyträge, vol. 4, p. 60, 1783: Samamisch Alps, Gilan Province, northern Persia.

Specimens collected:

1 male, Dire Daoua, Ethiopia, December 18, 1911.
1 male, Serre, Upper Hawash River, Ethiopia, February 13, 1912.
1 male, Gidabo River, Ethiopia, March 17, 1912.

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[21] Systema avium Æthiopicarum, pt. 2, p. 488, 1930.

[22] Journ. für Orn., 1911, p. 87.

[23] Mitteil. Zool. Mus. Berlin, vol. 16, pt. 1, p. 46, 1930.

The Gidabo River specimen is much blacker on the upper back than either of the other two; the Serre example is the palest of the three.

This race of the redstart is known only from southern Arabia and from Ethiopia and northern Somaliland with certainty in its African winter range. It follows, by inference, that it does not migrate down the valley of the Nile, but over the Red Sea.

ERITHACUS RUBECULA RUBECULA (Linnaeus)

Motacilla rubecula Linnaeus, Syst. Nat., ed. 10, p. 188, 1758: Europe; restricted type locality Sweden.

Specimens collected: 1 female, Mediterranean between Palermo and Almaria, October 11, 1912.

This specimen flew on board the steamer as Mearns was returning from Africa. Though it has nothing to do with the results of the field work in Africa, it is included here to complete the record of the specimens obtained.

The bird is in fresh plumage.

LUSCINIA MEGARHYNCHA AFRICANA (Fischer and Reichenow)

Lusciola africana Fischer and Reichenow, Journ. für Orn., 1884, p. 182: Klein Aruscha, near Mount Kilimanjaro.

Specimens collected: 1 male, Sadi Malka, Ethiopia, December 20, 1911.

The Persian nightingale (described from a wintering bird taken in Tanganyika Territory; hence the name *africana*) winters south to northern Tanganyika Territory. Apparently this bird has never been taken in Ethiopia before, and only a small number of wintering specimens have been taken in all. Meinertzhagen[24] obtained one in the Teita Hills near Voi, Kenya Colony, in December. He says: "In addition to this specimen other winter birds are known from near Kilimanjaro, southern Arabia, and N. Somaliland." According to Grote,[25] Schillings found it as early as September in the Massai country.

Apparently the migration route follows Arabia and the Red Sea and not the Nile Valley.

This form is paler than typical European *L. m. megarhyncha*.

Family SYLVIIDAE, Old World Warblers

SYLVIA CURRUCA CURRUCA (Linnaeus)

Motacilla curruca Linnaeus, Syst. Nat., ed. 10, p. 184, 1758: Europe; restricted type locality, Sweden.

Specimens collected: 1 female, Dire Daoua, Ethiopia, December 20, 1911.

The lesser whitethroat is a regular winter visitor in northeastern Africa, especially those parts of the Anglo-Egyptian Sudan that lie to the east of the Nile, and also in Ethiopia south to the Shoan lakes and to Arussi-Gallaland. It occurs west to Lake Chad.

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[24] Ibis, 1922, p. 30.

[25] Mitteil. Zool. Mus. Berlin, vol. 16, pt. 1, p. 47, 1930.

Grote[26] has summarized the data on this bird's migrations in Africa and finds that one line of flight passes along the Nile Valley and another along the Red Sea and Arabia. In Darfur, Lynes recorded the birds as early as the middle of October and observed them departing in March. Meinertzhagen[27] found the spring migration to extend later into the year in Egypt than in Asia Minor (March 24 to April 11 in Egypt, as against early March in Palestine).

Geyr von Schweppenburg[28] has given further details, which make it unnecessary to say more here.

The specimen is in worn plumage, and badly damaged by shot. This warbler does not molt appreciably in its winter quarters until long after its arrival (January and February).

SYLVIA COMMUNIS COMMUNIS Latham

Sylvia communis LATHAM, Supplement (I) to the general synopsis of birds, p. 287, 1787: England.

SPECIMENS COLLECTED: 1 female, Ethiopia (no exact locality), March 6, 1912.

The whitethroat occupies a much more extensive winter range than does *S. curruca curruca*, as it occurs south to central Tanganyika Territory regularly, and occasionally even to Southern Rhodesia and to Damaraland. In western Africa it ranges south to the Gold Coast and Northern Nigeria (south to the northern border of the Upper Guinea forest area).

It is a common bird in Ethiopia, where it begins to arrive late in September. The spring migration starts in the middle of March. Van Someren[29] has, however, found individuals lingering as late as April in Kenya Colony.

The present specimen is in molt.

The Caucasian race *icterops* is known to winter in northern Somaliland but has not yet been reported from Ethiopia. It is slightly larger and is darker above and has paler, less rufous, more grayish edges to the secondaries.

SYLVIA ATRICAPILLA ATRICAPILLA (Linnaeus)

Motacilla atricapilla LINNAEUS, Syst. Nat., ed. 10, p. 187, 1758: Europe; restricted type locality, Sweden.

SPECIMENS COLLECTED: 1 male, Loco, Ethiopia, March 13, 1912.

The familiar blackcap of Europe winters in Africa south to Gambia and French Guinea in the west, to Ruwenzori in central Africa, and to southwestern Tanganyika Territory in the east. It is a common bird in Ethiopia and Kenya Colony. It arrives in Ethiopia around the beginning of October; in Kenya Colony, toward the middle of November, according to Grote.[30] The birds of central and southern Kenya Colony begin moving northward in the first half of March, and the migration is well under way in Ethiopia and southern Arabia by the first week in April. Stragglers may be found along the Red Sea as late as the first days in May.

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[26] Mitteil. Zool. Mus. Berlin, vol. 16, pt. 1, p. 35, 1930.

[27] Ibis, 1922, p. 10.

[28] Verh. VI Int. Orn. Kongr. in Kopenhagen, pp. 89–101, 1926 (publ. 1929); and Journ. für Orn., 1930, p. 49.

[29] Nov. Zool., vol. 29, p. 233, 1922.

In Ethiopia this warbler occurs up to the surprising altitude of 2,700 meters, where Neumann[31] found it not uncommon. Meinertzhagen[32] writes that in "some winters the Blackcap is very common in Kenya Colony; in others it is scarce."

HIPPOLAIS PALLIDA ELAEICA (Lindermeyer)

Salicaria elaeica LINDERMEYER, Isis, 1843, p. 342: Greece.

SPECIMENS COLLECTED: 1 male, Sadi Malka, Ethiopia, January 31, 1912.

Both this form and the nominate race of the olivaceous warbler winter in Ethiopia, but only *elaeica* gets as far south as Kenya Colony. The two may be distinguished by their dorsal coloration, which is isabelline-brown in *pallida* and grayish olive-brown in *elaeica*.

Grote[33] does not mention Ethiopia as part of the winter range of *elaeica*, but Hesse[34] definitely mentions a specimen taken at Dire Daoua on December 28, 1907, which he refers to *elaeica*. Furthermore, Neumann[35] collected a bird at the south end of Lake Gandjule in Shoa, which he found to agree very closely with Hemprich and Ehrenberg's types from Dongola and Ambukol, except in having a darker maxilla, which, fortunately, is not a racial character in this species. Another record, which Grote appears to have overlooked, is a specimen of *elaeica* from Aruwin in northern Somaliland. Erlanger[36] writes that this specimen is somewhat grayer above than typical *pallida*, a statement that shows it to be of the form *elaeica*.

Meinertzhagen[37] writes that all winter "visitors of this species to Kenya Colony appear to belong to this race. From December to late March they are common from Uganda to the coast * * * latest spring record being from Kisumu on the Victoria Nyanza on l. iv." Van Someren[38] found a good deal of variation in the color of the upper back in his series from Kenya Colony and Uganda. I have seen no birds from either of those countries, but a series from the Sudan and the present bird from Ethiopia are quite uniform in this respect.

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[30] Mitteil. Zool. Mus. Berlin, vol. 16, pt. 1, pp. 33–34, 1930.
[31] Journ. für Orn., 1906, p. 284.
[32] Ibis, 1922, p. 8.
[33] Mitteil. Zool. Mus. Berlin, vol. 16, pt. 1, p. 31, 1930.
[34] Journ. für Orn., 1916, p. 268.
[35] Journ. für Orn., 1906, p. 284.
[36] Journ. für Orn., 1905, p. 736.
[37] Ibis, 1922, p. 6.
[38] Nov. Zool., vol. 29, p. 232, 1922.

The present specimen is in rather fresh plumage. It has a wing length of 68 mm.

PHYLLOSCOPUS TROCHILUS TROCHILUS (Linnaeus)

Motacilla trochilus LINNAEUS, Syst. Nat., ed. 10, p. 188, 1758: England (see Hartert, Die Vögel der paläarktischen Fauna, vol. 1, p. 597, 1907).

SPECIMENS COLLECTED: 2 males, 2 females, Gato River near Gardula, Ethiopia, April 2–21, 1912.

The willow warbler winters throughout the greater part of Africa south to the Cape Province. In the areas traversed by the Frick expedition it is a common and regular migrant and winter visitor. The four specimens listed above were very fat and were undoubtedly migrating north when collected.

The northern Eurasian race *eversmanni* also winters in Africa, and it may be that one of the present specimens may be of that race. However, the difference between the two is very slight (wings 66 to 70 mm in *trochilus*, 68 to 72 mm in *eversmanni*—males in both cases), and it is not always possible to differentiate between migrants of the two forms. The two males collected have wing lengths of 70 and 71.5 mm, respectively, but do not bear out the statement made by various writers that *eversmanni* is grayer, less greenish above, and whiter, less yellow below than the nominate race.

Erlanger[39] found this bird in great numbers in southern Shoa during December, and met with it commonly in Gurraland in the middle and end of March, where singing males were not uncommon. Neumann[40] found it was an abundant winter bird in the middle and more lofty highlands of Djamdjam, Kaffa, and Shoa. In Eritrea and extreme northern Ethiopia the species is much more of a migrant than a winter resident, according to Zedlitz.[41]

Grote[42] has summarized the published data on this bird and finds it reaches the equatorial parts of East Africa as early as the latter part of August, although the bulk of the autumn migration is in September, and by October or early November the birds arrive in South Africa. On the return migration the birds depart in March and April and only a few stragglers are left by the first days of May. Van Someren[43] has taken specimens as late as June in Kenya Colony, but such birds are exceptionally late.

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[39] Journ. für Orn., 1905, p. 735.

[40] Journ. für Orn., 1906, p. 284.

[41] Journ. für Orn., 1911, p. 70.

[42] Mitteil. Zool. Mus. Berlin, vol. 16, pt. 1, p. 24–25, 1930.

[43] Nov. Zool., vol. 29, p. 233, 1922.

PHYLLOSCOPUS COLLYBITA COLLYBITA (Vieillot)

Sylvia collybita Vieillot, Nouv. Dict. d'Hist. Nat., vol. 11, p. 235, 1817: France.

Specimens collected:

1 female, Adis Abeba, Ethiopia, December 30, 1911.
1 female, Sadi Malka, Ethiopia, February 1, 1912.
1 male, Arussi Plateau, Ethiopia, February 20, 1912.

The chiffchaff winters in Africa south to northern Somaliland, southern Ethiopia, the Bahr el Ghazal, Darfur, the Gold Coast, and Senegal. It does not occur in Kenya Colony.

In Ethiopia it occurs together with the willow warbler, which it resembles so greatly in appearance. Erlanger[44] found it common from November to March together with *P. trochilus* in northern Somaliland, and very abundant in Djamdjam in December. Strangely enough, Neumann did not meet with it, but only with *trochilus.* Zedlitz[45] writes that *collybita* is an abundant winter visitor along the Red Sea coastal belt in Eritrea but that it is much scarcer in the highlands of the interior of that country and of northern Ethiopia, where it occurs chiefly as a migrant.

The paler, northern race, *abietina*, also occurs in Ethiopia and occasionally wanders south into Kenya Colony.

SEICERCUS UMBROVIRENS OMOENSIS (Neumann)

Cryptolopha umbrovirens omoensis Neumann, Journ. für Orn., 1905, p. 208: Banka, Malo, Ethiopia.

Specimens collected:

2 females, Arussi Plateau, 9,000 feet, Ethiopia, February 20–29, 1912.
1 male, near Aletta, Sidamo, Ethiopia, March 6, 1912.

It is rather difficult to decide where to draw specific lines in the African forms of *Seicercus.* The present species contains at least five races as correctly stated by Neumann, but whether *wilhelmi* Gyldenstolpe[46] and *alpina* Ogilvie-Grant[47] are to be considered specifically distinct from the *umbrovirens* group is an open question. They have been usually granted specific standing, and in the absence of sufficient material, I do not care to propose any change but merely take the opportunity to point out the very close apparent relationships of these birds.

In Ethiopia and Kenya Colony (and immediately adjacent parts of Uganda, Tanganyika Territory, and Eritrea) there are five valid subspecies, as follows:

1. *S. u. umbrovirens* (Rüppell): The drainage basin of the Blue Nile to Lake Tsana and the Simien Mountains, Ethiopia. This form

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[44] Journ. für Orn., 1905, p. 735.
[45] Journ. für Orn., 1911, p. 70.
[46] Bull. Brit. Orn. Club, vol. 43, p. 37, 1922: Mount Muhavura, Birunga Volcanoes.
[47] Bull. Brit. Orn. Club, vol. 16, p. 117, 1906: Ruwenzori.

has fairly light brownish upperparts, with no olive-green tinge; middle of throat brownish.

2. *S. u. erythreae* (Salvadori): Bogosland, Eritrea, the drainage basin of the Barco River, the coastal plain of the Danakil area. This form, which I have not seen, is said to be even paler and purer brown above; middle of throat white.

3. *S. u. omoensis* (Neumann): Southern Ethiopia from Harrar and the Arussi-Galla countries to Djamdjam, eastern and southern Shoa, and the Omo region. This race has the upperparts distinctly washed with olive-green and has the whole throat tawny grayish brown.

4. *S. u. mackenziana* (Sharpe): The highlands of the interior of Kenya Colony from Kikuyu, Mount Kenya, Mount Uraguess, Mau, Escarpment, Burnt Forest, Londiani, Aberdare, and Elgeyu to Mount Elgon. This race is light below, i. e., middle of throat and most of abdomen white; the upperparts brown, washed with olive-green on wings, tail, and upper tail coverts.

5. *S. u. dorcadichroa* (Reichenow): Mount Kilimanjaro. Most similar to *omoensis*, but without the olive-green wash on the dorsum; throat tawny grayish brown.

In addition to these five, there is a very pale form with white lores in southwestern Arabia. This is the race named *yemensis* by Ogilvie-Grant[48] from the high mountains of the Yemen provinces. I have seen no material of this race.

Seicercus alpina appears to be merely an extremely dark version of *dorcadichroa*, and might well be considered a seventh race.

S. budongoensis and *S. laeta* may represent another specific group, rather than two such aggregates. I have seen no specimens of the former and have merely compared Seth-Smith's description[49] with a single example of the latter. Neither has anything to do with the *umbrovirens* group.

One of the two females is darker, more brownish, less olivaceous above than the other. In size they agree, both having wings 55 mm long; tails, 41–42; culmen, 10; tarsus, 19–19.5 mm. The male has the following dimensions: Wing, 61; tail, 48; culmen, 11; tarsus, 21 mm. The dark female resembles the birds from Sciotalit and Antotto discussed by Neumann[50] and seems to be an intermediate between *omoensis* and *umbrovirens*.

The three specimens are in fairly fresh plumage, a fact that, together with Erlanger's observations[51] indicates that the species breeds in fresh plumage. Erlanger found a nest with three eggs on April 26 at Burko, on the mountain trail between Harrar and Adis Abeba, and another nest on March 28 at Gara Mulata.

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[48] Bull. Brit. Orn. Club., vol. 31, p. 90, 1913.

[49] Bull. Brit. Orn., Club, vol. 21, p. 12, 1907.

[50] Journ. für Orn., 1905, p. 209.

[51] Ibid., p. 684.

SEICERCUS UMBROVIRENS MACKENZIANA (Sharpe)

Cryptolopha mackenziana Sharpe, Ibis, 1892, p. 153: Kikuyu.

Specimens collected: 1 male, Escarpment, 7,390 feet, Kenya Colony, September 7, 1912.

The range of this subspecies has already been outlined and need not be repeated here.

This specimen is slightly darker above, especially on the head, than any of a good series (24) from Mount Kenya, but a series from Escarpment is needed to determine whether this difference is constant. Granvik [52] collected a small series on Mount Elgon and found that—

> * * * only one of the 4 specimens has the throat greyish white, in the other 3 it is more yellowish-brown on a pale greyish white ground.
>
> Reichenow states * * * that the length of the wing of this bird is 55 mm. In my specimens the wings have a measurement of 59 and 64 mm. for the ♂ ♂ and 55 and 57 mm. for the ♀ ♀. It is therefore possible that the Elgon bird represents a larger form, which should thus have a separate name.

The size measurements I find are of no significance. Thus, the present bird from Escarpment has a wing length of 57; tail, 44; culmen, 11; and tarsus, 21 mm; while Mount Kenya birds range as follows: Males—wing, 57.5–62.5; tail, 47–50; culmen, 10.5–12; tarsus, 20.5–22 mm. Females—wing, 55–58; tail, 43–47; culmen, 11–12.5; tarsus, 20–21.5 mm.

Like all the races of this species the present form is a denizen of the highland forests. Granvik found it on Mount Elgon up to 11,000 feet, even above the true forest. He writes that it "was among the few that followed the slopes of the mountains right up to the highest summits, * * * even among the old and withered trees of the *Erica* forest. Only once did I observe the bird down at the foot of Elgon * * * but otherwise it was found in the subalpine regions." On Mount Kenya it has been taken up to 12,100 feet.

Little is known of the breeding time of *mackenziana*. Van Someren [53] shot a male on November 17 in the Londiani forest and says: "At the time that it was shot it was holding a piece of bark-fibre in its bill, probably for nesting purposes, as, on dissection, the testes were found to be large."

Mearns recorded seeing 10 of these birds at Escarpment, September 4–12.

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[52] Journ. für Orn., 1923, Sonderheft, p. 124.

[53] Ibis, 1916, pp. 379–380.

BRADYPTERUS BRACHYPTERUS ABYSSINICUS (Blundell and Lovat)

Lusciniola abyssinica Blundell and Lovat, Bull. Brit. Orn. Club, vol. 10, p. 19, 1899: Lake Chercher, near Harrar, Ethiopia.

Specimens collected: 1 male, Aletta, Sidamo, Ethiopia, March 2, 1912.

As far as I have been able to discover, this specimen is the second one known from Ethiopia, and it serves to connect the type from Harrar in the eastern part of that country with the series from Lake No, Sudan, recorded by Sclater and Mackworth-Praed.[54]

Sclater [55] has listed five races of this swamp warbler. Unfortunately, he, as well as other workers who have not had access to the type of *fraterculus* Mearns, has considered that form a race of *brachypterus*, which it is not. Van Someren [56] was more nearly on the right path when he wrote that *altumi* appears to be very similar to *fraterculus*. The trouble started because Mearns described *fraterculus* as a race of *babaeculus* on the assumption that Reichenow [57] was correct in stating that *babaeculus* and *barratti* were the same. Sharpe, however, inclined to the view that *babaeculus* was identical with *Calamoherpe gracilirostris* (=*Calamornis gracilirostris*), which view has been followed by the majority of students with the result that subsequent workers felt that Mearns implied *fraterculus* was a form with 12 broad rectrices like the other forms of *brachypterus*. However, it belongs to the section of the genus having 10 narrow tail feathers. The type itself has one complete rectrix (a narrow one) and portions of two others; the rest were shot off; but a female from Mount Kenya, which agrees perfectly with the type and which was identified as *fraterculus* by Mearns, has 10 narrow rectrices. It follows, then, that *fraterculus* is not a form of *brachypterus*, but a distinct species, closely related to *altumi*. The birds with 12 broad rectrices, inhabiting the highlands of Kenya Colony, are *centralis*.

I have not seen enough material to really decide on the merits of the races of the present bird, but it seems that the forms are very slightly differentiated. The birds of the Kenyan highlands are somewhat intermediate between *abyssinicus* and typical *centralis*.

The forms of this swamp warbler may be summarized as follows:

1. *B. b. brachypterus:* South Africa from the western Cape Province to Natal, and (assuming that Sclater is correct in considering *transvaalensis* Roberts [58] as a synonym) to the Transvaal and Nyasaland. Sclater writes that it also ranges north to Benguella, but inasmuch as he recognizes Bannerman's form *benguellensis* as well, this seems doubtful. I have, however, seen no Angolan material.

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[54] Ibis, 1918, p. 658.
[55] Systema avium Æthiopicarum, pt. 2, pp. 508–509, 1930.
[56] Nov. Zool., vol. 29, p. 229, 1922.
[57] Die Vögel Afrikas, vol. 3, p. 580, 1905.
[58] Ann. Transvaal Mus., vol. 6, p. 116, 1919.

2. *B. b. benguellensis:* Southern Angola. This form I have not seen. It is said to be the darkest of all the races of this species.

3. *B. b. centralis:* The highlands of Kenya Colony from the Kikuyu area and Mount Kenya to Mount Elgon, and the Kivu district of the eastern Belgian Congo, and reappearing again in Cameroon. This form is said by Neumann[59] to resemble the nominate form and *abyssinicus* but to have the black streaks on the lower throat more distinct; the upper parts slightly less rufous, more olive; the sides and flanks also more olive-brown. I have seen one specimen from Mount Elgon and one from near Fort Hall (Wambugu) and find that the character of the throat streaks does not hold at all, and that the dorsal coloration is darker, but not especially more olivaceous, than in *brachypterus* or *abyssinicus*. The sides and flanks are somewhat more olivaceous. Van Someren[60] writes that his series from Kenya Colony and Uganda are so different from Neumann's type that he is "inclined to think that they must belong to another race, especially as Kivu birds are not usually like Nairobi ones, and these birds are very local! However, until a series is obtained from Kivu, one cannot decide the question." He admits that Neumann's type was a very much abraded specimen, as was also another from Escarpment, which Neumann also called *centralis*, while van Someren's birds are in fresh plumage.

4. *B. b. abyssinicus:* Southern Ethiopia (Harrar and Aletta) west to Lake No on the Upper White Nile, Sudan. I have not seen any Sudanese birds, but I cannot help but question the identity of the specimens from there. It would not be surprising if they were just as close to *centralis* as to typical *abyssinicus*. This race is slightly darker and smaller than *brachypterus*.

The present specimen is in somewhat worn plumage. Its measurements are as follows: Wing, 59; tail, 64; culmen from base, 15.5; tarsus, 22 mm.

BRADYPTERUS CINNAMOMEUS (Rüppell)

Sylvia ? (Salicaria) cinnamomea Rüppell, Neue Wirbelthiere, zu der Fauna von Abyssinien gehörig, etc., Vögel, p. 111, pl. 42, 1840: Entschetqab, Simien, Ethiopia.

Specimens collected:

2 males, Arussi Plateau, 9,000–9,200 feet, Ethiopia, February 24–28, 1912.
1 female, Malke, Sidamo, Ethiopia, March 3, 1912.
1 male, 1 female, Escarpment, 7,390 feet, Kenya Colony, September 7–10, 1912.

The systematics of the cinnamon swamp warbler have been investigated by a number of workers, and a number of racial forms have been named, none of which appears to be valid. In the present study I have assembled a series of 79 specimens from Ethiopia, various parts of Kenya Colony (Mount Kenya, Escarpment, Naivasha, Chuka, Kericho, Limoru, Fort Hall, Aberdare Mountains, Nyeri, Mau, Gilgil, Lekiundu River, and Mount Garguess), Tanganyika Territory (Kilimanjaro and the Usambara Mountains), and the Ruwenzori Mountains. I find no constant geographic, size, or color differences that in any way support the contentions of those students who have recognized subspecific groups. Neumann [61] described *salvadorii* from the Kondoa Irangi district of Tanganyika Territory on the basis of their larger size. Three years later [62] he admitted that the difference was not well marked and that, on the whole, the typical, Ethiopian birds were larger than his race *salvadorii.* Van Someren [63] recognizes *salvadorii* and also *elgonensis* Madarász (supposed to have a wider pectoral band than *salvadorii*) of Mount Elgon east to Molo and Burnt Forest. He also suggests that a darker race occurs in southern Ankole, western Uganda. Granvik,[64] on the other hand, relegates Elgon specimens to typical *cinnamomeus.* Finally, Gyldenstolpe [65] examined a good series and could not "detect any colour-differences between specimens from Kilimanjaro, Mount Kenia, Mount Elgon, and the Birunga Volcanoes, nor are there any differences with regard to size." He was not able to examine any Abyssinian birds and so could not say definitely that there was but one race. I have compared the present three birds from Ethiopia with Kenyan and Tanganyikan material and find no difference between them. Table 33 shows very clearly the absence of any size criterion for the recognition of *salvadorii.* Only adults are tabulated.

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[59] Bull. Brit. Orn. Club, vol. 21, p. 55, 1908.
[60] Nov. Zool., vol. 29, p. 230, 1922.

The color characters are likewise variable; it may be that the degree of rufous increases with age, as Granvik suggested. The two Escarpment birds are darker grayish, less rufous, on the crown and upper back than any others seen, but the difference is a slight one.

This species is remarkable in that it varies with regard to the number of rectrices, the limits being 10 and 12, thereby bridging the gap between the 10-rectrixed and the 12-rectrixed species of the genus. If not for this species, it might almost be advisable to split the genus into two. Ogilvie-Grant first noticed this and wrote [66] that "examples of this species from the mountains of Shoa, Mount Kenya, and Kikuyu possess 12 tail-feathers, but in a large series of specimens from Ruwenzori only 10 tail-feathers are found, though one

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[61] Journ. für Orn., 1900, p. 304.
[62] Orn. Monatsb., 1903, p. 90–91.
[63] Nov. Zool., vol. 25, p. 288, 1918; and vol. 29, p. 230, 1922.
[64] Journ. für Orn., 1923, Sonderheft, pp. 239–240.
[65] Kongl. Svenska Vet.-Akad. Handl., 1924, pp. 137–139.
[66] Trans. Zool. Soc. London, vol. 19, p. 354, 1910.

TABLE 33.—*Measurements of 57 specimens of* Bradypterus cinnamomeus

Locality	Sex	Wing	Tail	Culmen	Tarsus
ETHIOPIA:		*Mm*	*Mm*	*Mm*	*Mm*
Arussi Plateau	Male	65.0	72.0	15.5	23.0
Do	do	63.0	72.5	16.0	22.5
KENYA COLONY:					
Escarpment	do	64.0	68.0	16.0	23.0
Mount Garguess	do		68.0	15.0	23.0
Lekiundu River	do	64.0	68.0	15.0	24.5
Mount Kenya	do	59.0	69.0	15.0	24.0
Do	do	62.0	70.5	14.0	23.0
Do	do	62.0	67.0	15.5	24.0
Do	do	63.5	69.0	15.0	24.0
Do	do	59.5	65.0	14.5	24.0
Do	do	63.0	67.0	15.5	23.0
Do	do	62.0	69.0	16.0	24.0
Do	do	60.0	65.0	14.5	23.0
Do	do	60.0	66.0	15.0	22.5
Do	do	59.0	68.0	14.5	24.0
Do	do	63.5	71.0	16.0	24.0
West of Mount Kenya	do	61.0	69.0	15.7	25.0
Do	do	59.5	63.5	16.0	24.0
Do	do	60.0	70.0	16.0	23.5
Do	do	57.5	60.0	15.0	25.0
Do	do	61.0	68.0	15.0	25.0
Do	do	60.0	65.0	15.5	24.0
Do	do	59.0	72.0	15.0	25.0
Do	do	62.5	65.0	15.0	22.5
Aberdare Mountains	do	66.0	58.0	14.5	24.0
Chuka	do	59.0	67.0	14.0	24.5
Gilgil	do	64.0	73.0	15.0	24.0
Limoru	do	64.5	65.0	15.0	23.0
Kijabe	do	62.0	71.0	13.5	23.0
Nyeri	do	60.0	64.5		25.0
Mau	do	61.0	69.0	14.5	23.5
Kericho	do	65.0	71.0		25.5
UGANDA: Ruwenzori Mountains	do	62.0	72.0	15.0	23.0
KENYA COLONY:					
Mount Kenya	Female	60.0	67.0	14.5	24.0
Do	do	61.0	68.0	16.0	24.5
Do	do		65.0	15.0	23.5
Do	do	56.5		15.5	23.5
Do	do	58.0	65.0	15.0	23.5
Do	do	61.0		15.0	24.0
Do	do	58.0	65.0	14.5	22.5
Do	do	60.5		15.0	23.0
West of Mount Kenya	do	64.0	66.0	15.5	22.5
Do	do	61.0	65.0	16.0	23.0
Do	do	60.0	65.0	15.0	24.0
Do	do	58.0	67.0	15.0	22.5
Do	do	58.0	63.5	15.0	23.5
Do	do	61.0	67.0	15.0	25.0
Do	do	61.5	70.5		24.0
Do	do	62.0	70.0	15.5	22.0
Kericho	do	59.0	65.0	15.0	23.5
Naivasha	do	66.0	74.0	15.0	24.0
Escarpment	do	61.0	68.0	15.5	23.0
Fort Hall	do	61.0	67.5	15.0	24.0
ETHIOPIA: Malke	do	61.0		15.0	22.5
TANGANYIKA TERRITORY:					
Usambara Mountains	do	57.5	68.0	14.5	22.5
Do	do	58.0	71.0	15.9	23.0
Kilimanjaro	do	61.0			24.0

example has the abnormal number of 11 * * *. It is thus evident that the birds from Ruwenzori, though differing in no way in plumage from specimens from Shoa, show symptoms of becoming gradually differentiated into a distinct form." I have examined a large series from Kenya Colony and find that while the majority of birds have 12 rectrices, occasional individuals have only 10 (i. e., naturally, not due to two feathers being shot off).

This bird inhabits swampy ground covered with thick, luxuriant vegetation and occurs only in the highlands, the altitudinal range being approximately 5,000 to 13,500 feet. Von Heuglin[67] writes that it occurs on the mountains of Simien, and the high plateaus of Begemeder, Lasta, and Gallaland at altitudes of from 9,000 to 12,000 feet. On Mount Elgon, Granvik found it on the fringe of the bamboo zone at 9,500 to 10,000 feet, but also met with it at 8,000 feet near Londiani. On Ruwenzori it has been taken from 6,000 to 10,000 feet; on Kilimanjaro from 6,000 to 12,000 feet. The highest point at which it has been found is 13,500 feet on Mount Karissimbi, in the Kivu district of the Belgian Congo, where Gyldenstolpe obtained it. Nakuru, Naivasha, Kericho, Fort Hall, and Lekiundu River appear to be the lowest localities at which it occurs.

Not much is known of the breeding season, but nestlings have been taken on Mount Kenya in the middle of October.

BRADYPTERUS ALFREDI FRATERCULUS Mearns

Bradypterus babaeculus fraterculus Mearns, Smithsonian Misc. Coll., vol. 61, no. 20, p. 3, 1913: Escarpment, Kenya Colony.

Specimens collected: 1 male, Escarpment, Kenya Colony, September 10, 1912.

This specimen is the type of this race.

This bird is not a race of *brachypterus*, as considered by Sclater and others, or of *barratti*, to which (under the name *babaeculus*) Mearns thought it was most closely allied, but appears to be a form of *alfredi* nearest to the Kilimanjaro form *sjöstedti*, but darker. Similarly, it seems that *usambarae* is another race of this species. Furthermore it appears not impossible that *nyassae* may be still another race, although I can not say without seeing material. Likewise, I can not repress a wonder whether *roehli* and *usambarae* may not be the same, but again lack of material of both sexes of each of the forms prevents me from deciding (types of both examined).

The forms of *B. alfredi* are as follows:

1. *B. a. alfredi:* Only known from the type locality (and the type specimen)—Njangalo, west of Lake Albert.

2. *B. a. albicrissalis:* Only known from the type locality (and the type specimen)—Mubuku Valley, eastern Ruwenzori.

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[67] Ornithologie Nordost-Afrikas, etc., vol. 1, p. 275, 1869.

3. *B. a. fraterculus:* The highlands of Kenya Colony from Mount Kenya to Mau.
4. *B. a. sjöstedti:* Mounts Kilimanjaro and Meru.
5. *B. a. usambarae:* Usambara and Uluguru Mountains.

A possible sixth race is *nyassae* of the Nyasa highlands. It may even be that *msiri* of the Katanga is a seventh.

The five forms listed may be distinguished by the following characters: The under tail coverts are entirely white in *albicrissalis;* they are margined with white in *alfredi;* and they have no white on them in the other three. Of the remaining three, *fraterculus* is the darkest; it has the breast, sides, flanks, thighs, and under tail coverts brownish olive; the other two have these areas distinctly tawny-olive. The difference between *sjöstedti* and *usambarae* is rather slight, but the former is more grayish on the breast, sides, and flanks than the latter.

A female from Mount Kenya is slightly paler below than the present male. In his original description of *fraterculus* Mearns mentions two females from Mount Kenya. One of these is really *B. altumi* van Someren. The male has the following dimensions: Wing, 62; tail, 68; culmen from base, 15.5; tarsus, 25 mm. The female: Wing, 62; tail, 62; culmen, 14.8; tarsus, 24 mm. Both are in fairly fresh plumage.

CALAMONASTES SIMPLEX SIMPLEX (Cabanis)

Thamnobia simplex Cabanis, Journ. für Orn., 1878, pp. 205, 221: Ndi, Teita district, Kenya Colony.

Specimens collected:

2 adult males, 1 adult female, 1 unsexed, Dire Daoua, Ethiopia, December 5–10, 1911.
1 adult female, Sadi Malka, Ethiopia, January 30, 1912.
1 adult male, Anole village, Ethiopia, May 18, 1912.
2 adult males, 2 juvenal males, Sagon River, Ethiopia, May 19–June 5, 1912.
1 adult unsexed, Turturo, Ethiopia, June 15, 1912.
1 adult female, Anole, Ethiopia, June 17, 1912.
1 adult male, Wobok, Ethiopia, June 18, 1912.
1 adult unsexed, near Saru, Ethiopia, June 19, 1912.
1 adult male, 1 adult female, 25 miles southeast Lake Rudolf, Kenya Colony, July 12, 1912.
1 adult male, Indunumara Mountains, Kenya Colony, July 14, 1912.
1 adult female, Endoto Mountains, north, Kenya Colony, July 20, 1912.
1 adult male, 1 adult female, Endoto Mountains, south, Kenya Colony, July 23, 1912.
2 adult males, 24 miles south of Malele, Kenya Colony, July 29, 1912.
1 adult male, 1 adult female, Tana River, camp 3, Kenya Colony, August 16, 1912.
1 adult male, Thika River, Bowlder Hill, Kenya Colony, August 28, 1912.

Soft parts: Iris reddish brown; bill black (yellow at angle of mouth in juvenal birds); feet and claws brown (slightly darker in the juvenal birds).

I agree with Sclater[68] and van Someren[69] that Zedlitz's races *hilgerti* and *erlangeri* can not be maintained. If they were valid, the Dire Daoua and Sadi Malka specimens would, on geographic grounds, be *erlangeri*, and those from southern Shoa and northern Kenya Colony would probably be *hilgerti*, but I find no size or color differences between them. I can not account for Zedlitz's results, although it must be admitted I have seen no topotypical material of either of his races. Also, it may be that the birds of northern Kenya Colony and extreme southern Shoa are not supposed to be *hilgerti*, but are (as I find them) indistinguishable from *simplex*. This would account for the fact that van Someren and I both find no differences in our respective series, although van Someren had birds from the lower reaches of the Juba River, which must be considered *hilgerti* if that form be recognized. Gyldenstolpe[70] considers *hilgerti* a valid race but unfortunately gives no discussion.

The size variations of the present series are shown in table 34.

TABLE 34.—*Measurements of 23 specimens of* Calamonastes simplex simplex

Locality	Sex	Wing	Tail	Culmen	Tarsus
ETHIOPIA:		*Mm*	*Mm*	*Mm*	*Mm*
Dire Daoua	Male	56.0	51.0	16.0	21.5
Do	do	60.0	59.0	15.0	22.5
Do		54.0	53.0	14.5	19.0
Anole village	Male	60.0	57.0	15.0	23.5
Sagon River	do	59.5	61.0	15.0	22.0
Do	do	58.0	51.0	15.0	22.5
Wobok	do	58.0	56.0		22.0
Near Saru		51.0	54.0	15.0	21.0
Turturo		57.0	59.0	15.0	24.0
KENYA COLONY:					
25 miles south of Lake Rudolf	Male	59.0	55.0	15.0	21.0
Indunumara Mountains	do	59.0	55.0	15.0	22.5
Endoto Mountains	do	57.0	57.0	15.0	22.0
24 miles south of Malele	do	59.0	60.0	16.0	22.5
Do	do	55.0	50.5	15.0	21.5
Tana River	do	58.0	56.0	15.0	21.0
Thika River	do	58.0	56.0	15.5	22.0
ETHIOPIA:					
Dire Daoua	Female	56.0	50.0	15.0	20.0
Sadi Malka	do	56.0	52.0	15.0	19.5
Anole	do	53.0	49.0	15.0	20.5
KENYA COLONY:					
25 miles south of Lake Rudolf	do	53.5	46.0	14.0	20.5
Endoto Mountains, north	do	54.0	50.5	15.0	20.0
Endoto Mountains, south	do	54.0	47.0	15.5	20.5
Tana River	do	55.0	52.0	14.0	21.0

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[68] Systema avium Æthiopicarum, pt. 2, p. 516, 1930.

[69] Nov. Zool., vol. 29, p. 228, 1922.

[70] Arkiv för Zool., vol. 19A, no. 1, p. 46, 1926.

The two juvenal birds are fully grown and resemble the adults generally, but are distinctly tinged with greenish olive and have the mandible largely yellowish in color.

Some of the adult birds have considerable whitish or grayish white on the forehead, while others have none.

One of the birds from the Endoto Mountains, collected on July 23, is molting the rectrices; another taken on August 16, on the Tana River, is molting the remiges; the rest of the birds are in rather worn or, at least, not very fresh, plumage, but do not show any signs of ecdysis.

This warbler is a denizen of thorny thickets, and, being of a rather secretive nature, is more often heard than seen. Pease [71] found it fairly common in thorn-bushes in the Danakil coastal area, as did Erlanger in Gurraland. Jackson [72] met with it in southern Kenya Colony and writes that it "is very plentiful in suitable places, but it is essentially a bird of the wilderness. It is particularly abundant between Tara and Mt. Mauungu."

Erlanger [73] found this bird breeding in April in Gurraland, four eggs apparently comprising a clutch. Jackson shot a breeding female on December 30 at Mauungu, southern Kenya Colony.

Mearns wrote on the label of one of the adult males, "note a loud, monotonous click."

APALIS CINEREA CINEREA (Sharpe)

Euprinodes cinereus SHARPE, Ibis, 1891, p. 120: Mt. Elgon.

SPECIMENS COLLECTED: 2 females, Escarpment, Kenya Colony, September 6–8, 1912.

Granvik [74] separated the birds of the Kikuyu highlands under the name *minor*, based on their smaller size. Grote [75] renamed it *granviki* as *minor* Granvik was preoccupied by *minor* Ogilvie-Grant (1917).

In his notes on Granvik's type, Gyldenstolpe [76] states that while he would be inclined to synonymize *minor* with *cinerea*, he finds that some very slight differences do exist between Elgon birds (typical *cinerea*) and those forms east of the Rift Valley, and so he tentatively recognizes the eastern race.

Granvik does not say where the ranges of the two forms found in East Africa meet, and it is therefore a little difficult to know what he would have considered specimens from Escarpment. However, the present two birds are larger than one from the Honi River, southwest of Mount Kenya, which locality would seem to come within the range of *granviki*. They have wings measuring 51 and 56 mm, respectively, while the Honi River female has a wing length of 50 mm. The figures given by Granvik for *cinerea* are 53 to 57 mm; those for *minor* (=*granviki*), male 52, female 49 mm. It appears then that if the two forms are distinct, the birds from the Kikuyu Escarpment are nearer to the typical race. Sclater[77] does not recognize *granviki*, but as he bases his decision largely on Gyldenstolpe's comments (and Gyldenstolpe allows the eastern race to stand), it seems that, for the present at least, *granviki* must be given the benefit of the doubt.

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[71] Ibis, 1901, p. 649.

[72] Ibid., p. 54.

[73] Journ. für Orn., 1905, pp. 722–723.

[74] Journ. für Orn., 1923, Sonderheft, p. 243.

[75] Orn. Monatsb., 1927, p. 23.

[76] Arkiv för Zool., vol. 19A, no. 1, p. 48, 1926.

There are no color differences between *granviki* and *cinerea*, those given by Granvik being wholly individual in nature.

The ranges of the races of the brown-headed forest warbler may be summed up as follows:

1. *A. c. cinerea:* The highlands of Uganda and extreme southwestern Kenya Colony (east to the Kikuyu Escarpment), and reappearing again on Mount Cameroon and the highlands of Adamaua, and in the mountain forests west of Lake Tanganyika.

Reichenow[78] has recorded *cinerea* from the highland forest west of Lake Tanganyika. Sassi[79] has listed the same specimens, all collected by Grauer. These records appear to have been overlooked by Sclater.

2. *A. c. granviki:* The highlands of central Kenya Colony from Mt. Kenia and the Honi River to Nairobi and Kiambu (doubtfully distinct from *cinerea*).

Recently, van Someren[80] has recorded "*Euprinodes cinerea cinerea*" from Marsabit in northern Kenya Coyony. He says nothing about *granviki*, and it is therefore probable that he considers it identical with *cinerea*. If *granviki* be maintained, however, the Marsabit birds would probably have to be referred to that race. The locality is a new one for the species and constitutes a very remarkable northeastern extension of range.

3. *A. c. sclateri:* The islands of Fernando Po and Sao Thome in the Gulf of Guinea. I have seen no material of this form, but Bannerman[81] writes that he doubts very much if *sclateri* can stand.

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[77] Systema avium Æthiopicarum, pt. 2, p. 521, 1930.

[78] Die Vogelfauna des Mittelafrikanischen Seengebiets. Wissensch. Ergebn. der Centralafrika-Exped. Herzogs Adolf Friederich zu Mecklenburg, p. 361, 1911.

[79] Ann. naturh. Hofmus. Wien, vol. 30, p. 301, 1916.

[80] Journ. East Africa and Uganda Nat. Hist. Soc., no. 35, p. 67 (143), 1930.

[81] Ibis, 1915, p. 503.

"If further investigation shows it to be a good subspecies, it will probably be found to be confined to Fernando Po. * * *

Dr. Reichenow * * * believes the *Euprinodes* from Cameroon Mountains to be referable to *E. c. sclateri*, in which case it will probably be found that *E. cinereus* and *E. c. sclateri* are synonymous.

This race is said to be more creamy yellowish on the throat, breast, and upper abdomen than *cinerea* or *granviki*.

The distribution of this species, like that of other mountain birds, offers much food for thought. It is very curious, to say the least, that it should occur without any change on Mount Elgon and Mount Cameroon and not in between, but break up into slightly differentiated forms on either side, with no such great geographical gap between their respective ranges.

There is considerable variation in color in this warbler, regardless of sex, age, season, or geography. Thus, one of the present two specimens has the top of the head much more brownish, less grayish, than the other. The former has the upper back slightly less bluish slate, more olivaceous slate, than the latter. Sassi has suggested that the degree of white in the outer rectrices may be correlated with age. I have not enough material to investigate this point, but there is considerable variation in the few specimens seen by me.

In his field notes Mearns recorded seeing about 10 of these birds at Escarpment, September 4–12. They are found only in dense forests.

APALIS FLAVIDA FLAVOCINCTA (Sharpe)

Euprinodes flavocinctus SHARPE, Journ. für Orn., 1882, p. 346: Adi, i. e., Athi River, Kenya Colony.

SPECIMENS COLLECTED:

1 male, Lekiundu River, Kenya Colony, August 8, 1912.
1 male, Tharaka district, Kenya Colony, August 14, 1912.
4 males, 1 female, Tana River, Kenya Colony, August 14–17, 1912.

All the present specimens have the basal portion of the mandible yellowish, and all lack any trace of a black pectoral mark. It, therefore, appears that they are all young birds. On the other hand, a series of unquestionably adult birds from the Athi River, and from Nyeri have black bills and have the black pectoral area well developed. These latter birds are also darker generally than the present series.

Neumann[82] and Zedlitz[83] have discussed the races of this bush warbler, and van Someren[84] has even separated the present form as a distinct species, chiefly because of its long tail. He has, in a more recent publication,[85] shown that long-tailed and short-tailed birds occur together, an argument in favor of his action in calling *flavocincta* a species.

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[82] Journ. für Orn., 1906, p. 278.
[83] Journ. für Orn., 1916, pp. 89–91.
[84] Nov. Zool., vol. 29, pp. 221–222, 1922.
[85] Nov. Zool., vol. 37, pp. 367–368, 1932.

The material available to me for study includes only 6 of the 11 proposed races (one of which, *neumanni*, is questioned by Sclater, but which I have not seen and therefore can not judge), and, as the total series comprises less than 30 specimens in all, I follow Sclater's arrangement.[86]

Gyldenstolpe,[87] however, upholds Zedlitz in deciding that *neumanni* is a valid race, and it may be that Sclater is wrong in this regard.

In the general region involved in the present report five races (six if we count *neumanni*) are found, as follows:

1. *A. f. golzi:* The coastal districts of extreme southern Kenya Colony and northern Tanganyika Territory, inland in the latter country to Dodoma and the Unyamwesi district. This form enters into the present report because it occurs at Mombasa, the terminus of the African wanderings of the Frick expedition.

2. *A. f. aequatorialis:* Southwestern Kenya Colony from near Mau and the Sotik district and around Lake Victoria.

3. *A. f. flavocincta:* Central Kenya Colony from the Lekiundu River and Mount Kenya to Kikuyu, Ukamba, the Athi River, the Taru Desert, and the plains east of Kilimanjaro, intergrading in the Sotik area with *aequatorialis*.

4. *A. f. malensis:* Extreme southern Shoa (possibly Gallaland also) south through the Rendile district to the Northern Guaso Nyiro River and Lake Baringo in Kenya Colony.

5. *A. f. viridiceps:* British Somaliland (none seen by me).

If *neumanni* is a synonym of *viridiceps*, the range of the latter will have to be extended south to Afgoi, in southern Italian Somaliland. Sclater suggests the identity of these two but restricts the range of *viridiceps* to British Somaliland. Reichenow,[88] on the other hand, appears to consider southern Somaliland birds as *malensis*. If this is true, then the range of *malensis* will have to be extended east through Gallaland to southern Somaliland. The fact that there are three divergent opinions about *neumanni* (that it is distinct; that it is a synonym of *viridiceps;* and that it is the same as *malensis*) makes me wonder whether it may not really be distinct, or if the distinctness of some of the other forms is not due more largely to age and seasonal differences than to real racial characters. Certainly, the form *aequatorialis* is very close to *golzi*, and *malensis* is only doubtfully distinct from *flavocincta*.

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[86] Systema avium Æthiopicarum, pt. 2, pp. 523–524, 1930.

[87] Arkiv för Zool., vol. 19A, no. 1, p. 49, 1930.

[88] Die Vögel Afrikas, vol. 3, p. 612, 1905.

The five races listed above may be told by the following key:

a^1. Entire top of head, including forehead, green .... viridiceps
a^2. Forehead, or entire top of head, grayish.
  b^1. Entire top of head grayish.
    c^1. Pectoral band usually pale yellow .... golzi
    c^2. Pectoral band, usually rich yellow .... aequatorialis
  b^2. Forehead grayish, crown greenish.
    c^1. Light area on outer rectrices almost white .... malensis
    c^2. Light area on outer rectrices pale yellow .... flavocincta

Neumann writes that *malensis* differs from *flavocincta* in the color of the upperparts, lacking the brownish tinge of the latter race. However, I am unable to see any brownish tinge in the color of the upperparts of either form. I consider *malensis* a very doubtful form but have seen only one specimen of it, and I hesitate to synonymize it on such slender evidence. The specimen examined does substantiate the character of the light outer rectrices.

This bush warbler appears to take two years to acquire full adult plumage and to begin to breed when one year old. Thus, Mearns shot a "mated pair" on August 14, both of which birds are in immature plumage. The black pectoral mark does not appear until the adult plumage is attained. This late assumption of the black transverse bar on the lower breast suggests that such species as *Apalis thoracica* and its races, *A. flavigularis*, *A. ruwenzorii*, *A. pulchra*, all of which have well-developed black pectoral bands, may be relatively recent species as compared with *A. flavida*, *A. cinerea*, and others.

The breeding season near Nairobi is in June, and possibly later as well. Van Someren[89] found a nest with eggs on June 20 in his garden at Nairobi.

APALIS FLAVIDA MALENSIS Neumann

Apalis malensis NEUMANN, *in* Reichenow, Die Vögel Afrikas, vol. 3, p. 612, 1905: Schambala River, Male district, southern Abyssinia.

SPECIMENS COLLECTED: 1 male, Gato River near Gardula, Ethiopia, April 15, 1912.

This specimen is in worn plumage and has had most of its tail shot off, but fortunately the right outermost rectrix is present and agrees with Neumann's diagnosis of *malensis* in being very pale yellowish white. Gardula is not far from the type locality of *malensis*, and there can be no question as to the racial identity of this specimen.

Erlanger[90] found a nest with three eggs at Dagaje, in Gurraland, on April 4. He found the so-called *neumanni* breeding in May in southern Somaliland.

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[89] Ibis, 1916, p. 459.

[90] Journ. für Orn., 1905, p. 729.

PHYLLOLAIS PULCHELLA (Cretzschmar)

Malurus pulchellus CRETZSCHMAR, Atlas zu der Reise im nördlichen Afrika, Vögel, p. 53, pl. 35, 1830: Kordofan.

SPECIMENS COLLECTED:

3 males, 2 females, Dire Daoua, Ethiopia, November 30–December 22, 1911.
1 male, Sadi Malka, Ethiopia, January 28, 1912.
1 female, Serre, Ethiopia, February 13, 1912.
1 male, 1 female, Lake Abaya, Ethiopia, March 19–20, 1912.
1 male, 4 females, 1 unsexed, Gato River near Gardula, Ethiopia, April 6–May 13, 1912.

This little warbler occurs from Eritrea and Sennar west to the Divide Range in central Darfur, and south to the Ituri district of the Belgian Congo (Kasenyi, west of Lake Albert and to Ruwenzori), Uganda, and Kenya Colony, south to Mount Meru near Kilimanjaro in extreme northeastern Tanganyika Territory. Sclater[91] gives the Athi River as its southern limit, but Sjöstedt[92] lists a specimen from the Ngare-na-nyuki River near Mount Meru.

Van Someren[93] finds that southern birds are darker on the back than northern ones. I have but one southern specimen and cannot form an opinion, but if this difference should be found to hold, Sharpe's name *hildegardae*[94] would be available for the southern form. Gyldenstolpe[95] writes that a specimen from Eritrea is considerably paler, more olive-brown, than others from Kenya Colony, Uganda, and the eastern Congo.

In Ethiopia this bird appears to be restricted to the drainage basin of the Nile and its tributaries, the southern Shoan lake region, and the lowlands of the Somaliland border. It does not occur in the highlands at all (i. e., above about 4,500 feet). In Eritrea, Zedlitz[96] found it only once, and Jesse did not meet with it at all. The single specimen obtained by Blanford[97] is only questionably from Eritrea, as Blanford writes that, "the label * * * has unfortunately been lost, and I have forgotten the exact locality. I believe, however, that the bird was shot in the Anseba valley," which would imply that it probably came from Ethiopia.

In the Sudan it is known from Sennar, Kordofan, Darfur, Upper Nile, and Mongalla provinces. In Darfur, Lynes[98] found it fairly common in the wooded country at the base of Jebel Marra, and apparently absent elsewhere. Hawker[99] found it very common on the White Nile south of Abba Island.

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[91] Systema avium Æthiopicarum, pt. 2, p. 530, 1930.

[92] Wissenschaftliche Ergebnisse der schwedischen zoologischen Expedition nach dem Kilimandjaro . . . Deutsch-Ostafrika, 1905–6, etc., Vögel, p. 155, 1908.

[93] Nov. Zool., vol. 29, p. 223, 1922.

[94] Bull. Brit. Orn. Club, vol. 10, p. 28, 1899: Athi River.

[95] Kongl. Svenska Vet.-Akad. Handl., 1924, p. 144.

[96] Journ. für Orn., 1911, p. 68.

[97] Observations on the geology and zoology of Abyssinia, etc., p. 374, 1870.

[98] Ibis, 1925, pp. 97–98.

It appears to be absent (or at least very scarce and has not been taken) in the arid portions of northern Kenya Colony (eastern Rendile to Jubaland) but has been found at the south end of Lake Rudolf, thence south to the Trans-nzoia, the Uasin Gishu, etc., to the Kavirondo, Kikuyu, and Sotik districts, and to Ukambani, the Athi River, Simba, and to the Tanganyika border.

One of the females from Gato River, April 30, is a young bird. It has a bare space around the eyes, and the bill is only 8 mm long (as against 9 to 10.5 mm in adults). The plumage is as in the adults.

The measurements of the adults reveal rather little variation; thus, the six males have the following dimensions: Wing, 45–48; tail, 42.5–46.5; culmen from base, 9–10.5; tarsus, 14.5–16.5 mm. Seven females: Wing, 43.5–47; tail, 41–43.5; culmen, 9–10.5; tarsus, 15–16 mm.

On November 30, at Dire Daoua, Mearns shot a mated pair. This is the only clue I know of as to the breeding season in Ethiopia.

SYLVIETTA BRACHYURA HILGERTI Zedlitz

Sylvietta brachyura hilgerti Zedlitz, Journ. für Orn., 1916, p. 99: Dire Daoua, Ethiopia.

Specimens collected: 1 male, Dire Daoua, Ethiopia, December 6, 1911.

I have not enough material to attempt a revision of the forms of this crombec and therefore follow Sclater's arrangement.[1] In the regions traversed by the Frick expedition two races occur, as follows:

1. *S. b. hilgerti:* Eastern Eritrea, northern Somaliland, and eastern Ethiopia. Wing, 52–58 mm.
2. *S. b. leucopsis:* Southern Somaliland, Gurraland, Arussi Gallaland, west through the Rendile country to the east side of Lake Rudolf, south through the thornbush and scrub country of northern and eastern Kenya Colony to the dry plains east of Mount Kilimanjaro and to Nguruman. Similar to *hilgerti* but smaller; wings, 47.5–52 mm.

The present specimen is rather small for its race (wings, 53; tail, 21; culmen, 10; tarsus, 19 mm), but it is undoubtedly *hilgerti*, as it comes from the type locality of that form.

The validity of *hilgerti* has not gone unquestioned in literature, and with apparently good reason, as the only difference between it and *leucopsis* is one of size, in which regard the two forms overlap to a considerable extent.

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[99] Ibis, 1902, p. 419.

[1] Systema avium Æthiopicarum, pt. 2, pp. 531–533, 1930.

West of Lake Rudolf this race merges with *micrura*, according to van Someren,[2] who finds birds from Meuressi, Turkwell, Kobua River, and West Rudolf less grayish, more sandy above than true *leucopsis*.

SYLVIETTA BRACHYURA LEUCOPSIS Reichenow

Sylviella leucopsis Reichenow, Orn. Centralbl., 1879, p. 114: Kibaradja, Tana River, Kenya Colony.

Specimens collected:

1 male, 1 female, Northern Guaso Nyiro River, Kenya Colony, August 1–3, 1912.

1 female, Lekiundu River, Kenya Colony, August 5, 1912.

I agree with van Someren,[3] Sclater and Mackworth-Praed,[4] and Sclater[5] that *tavetensis* Mearns is a synonym of *leucopsis*. I have examined the type of the former and find that the only difference between it and the present specimens is that it has the rufescent-tawny more extensive on the underparts, the white areas more restricted. At first sight the bill of *tavetensis* appears to be smaller, but measurements fail to substantiate this visual impression, as the base of the bill is less exposed than in the present examples.

The range and characters of this race have already been given and need not be repeated here.

The present specimens are in rather worn plumage; they have the following dimensions: Wings, males, 48, 52; female, 47; tail, males, 21, 23; female, 20; culmen from base, males, 9.5, 9.5; female, 10; tarsus, males, 16.5, 17; female, 17 mm.

Erlanger[6] found this bird breeding in April in Gurraland.

SYLVIETTA WHYTII JACKSONI Sharpe

Figure 13

Sylviella jacksoni Sharpe, Bull. Brit. Orn. Club, vol. 7, p. 7, 1897: Kamassia, Kenya Colony.

Specimens collected:

1 male, 2 females, Tana River at mouth of Thika River, Kenya Colony, August 23–24, 1912.

1 male, 1 female, Athi River near Juja Farm, Kenya Colony, August 31, 1912.

I find that the arrangement followed by Sclater[7] in regard to the races of this bird is incomplete and, as far as the available material shows, inaccurate in some respects. He recognizes three races—

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[2] Nov. Zool., vol. 29, p. 226, 1922.

[3] Ibid., p. 225.

[4] Ibis, 1918, p. 671.

[5] Systema avium Æthiopicarum, pt. 2, p. 532, 1930.

[6] Journ. für Orn., 1905, p. 732–733.

[7] Systema avium Æthiopicarum, pt. 2, pp. 532–533, 1930.

whytii, *minima*, and *jacksoni*. I consider *minima* to be a distinct species and recognize four races of *whytii*—the typical one, *jacksoni*, *loringi*, and *abayensis*—and feel that probably *fischeri* is also valid but have not the material necessary to decide its status.

My conclusions may be summarized by listing the valid races with their synonyms, characters, and distribution:

1. *S. w. whytii:* From Gazaland and Nyasaland to Mozambique, thence northward along the coastal areas of Tanganyika Territory (inland to Morogoro) to Malindi and Lamu in Kenya Colony. If *fischeri* Reichenow (described from Malindi) should be found valid, as is claimed by van Someren,[8] then the range of *whytii* would stop somewhere in northeastern Tanganyika Territory. Zedlitz[9] writes that *pallidior* Grote (from Mikindani) is a young specimen of *whytii*. The characters of *whytii*, like those of the other forms, are relative ones and are therefore difficult to express. On the whole, this form has the forehead, chin, and upper throat more whitish than in any of the others and has pale tawny underparts; wings, 52–57 mm.

2. *S. w. jacksoni:* Central and northern Tanganyika Territory, west to Lake Victoria (Ngare Dowash, Sagayo, etc.), north through the Kavirondo, Sotik, and western Ukamba areas to the Athi River, and the Thika-Tana River junction. Birds from the Athi and Thika Rivers are really intermediate between typical *jacksoni* and *loringi*. The form *jacksoni* differs from *whytii* in being more darkly and richly colored below, in lacking the whitish on the forehead, chin, and upper throat; wings, 58–63 mm.

Of this race the following are synonyms: *Sylviella major* Neumann,[10] *Sylviella distinguenda* Madarász,[11] and *Sylvietta zedlitzi* Reichenow.[12] While on the subject of synonyms, it may be mentioned that Zedlitz[13] uses *johnstoni* instead of *jacksoni*. This is evidently a slip, as there is no described form under this name. Also, Reichenow[14] lists a few specimens as *Sylviella leucopsis*, which are really *S. w. jacksoni*.

3. *S. w. loringi:* The rather dry scrub and plains country of south-central and southeastern Kenya Colony, from Fort Hall to the Taru Desert, the Teita and Taveta districts, and the plains east of Mount Kilimanjaro. This race is somewhat intermediate in color between *jacksoni* and *whytii* but nearer the former, with which it agrees in

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[8] Nov. Zool., vol. 29, pp. 226–227, 1922.

[9] Journ. für Orn., 1916, p. 95.

[10] Journ. für Orn., 1900, p. 305: Usandawe, Tanganyika Territory.

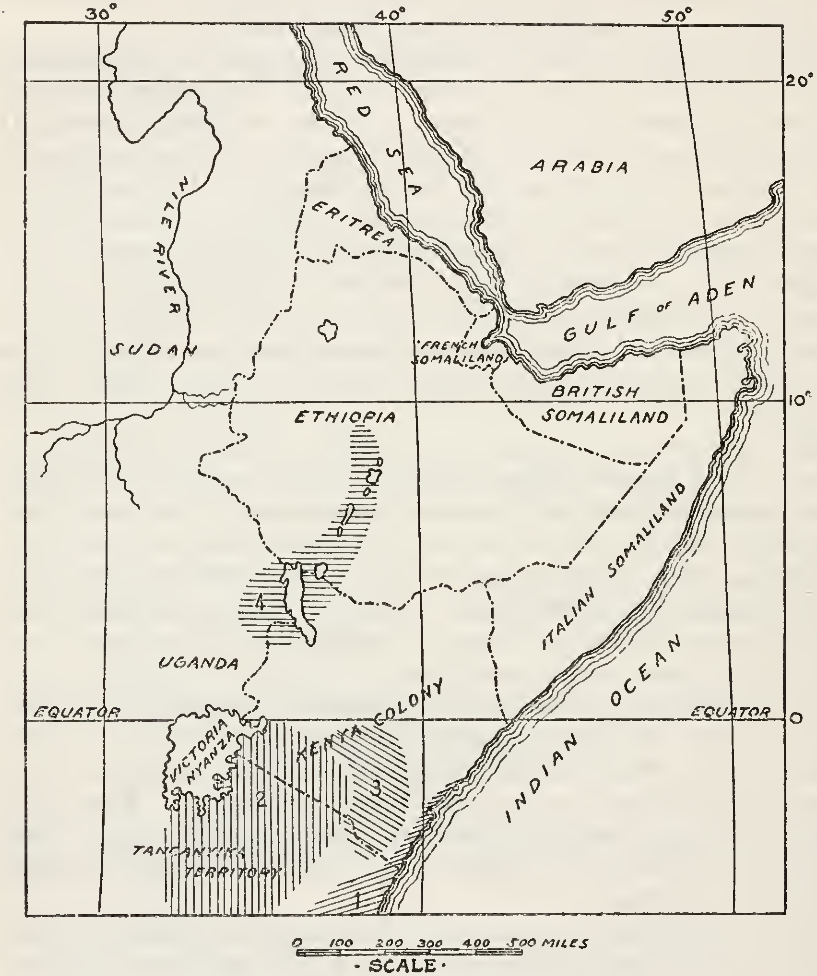
[11] Arch. Zool. Hungar. (Budapest), vol. 1, p. 177, 1910: Ngare Dowash, east shore of Lake Victoria.

[12] Journ. für Orn., 1918, p. 437: Yaida, Tanganyika Territory (immature bird).

[13] Journ. für Orn., 1916, pp. 96, 98.

[14] Die Vögel Deutsch-Ost-Afrikas, p. 223, 1894.

the absence of whitish on the forehead, chin, and upper throat, and from which it differs in being considerably paler below and in having the upper parts light neutral gray instead of dark gull gray; wings, male 61, female 56.5 mm.


30°
40°
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RED SEA
ARABIA
NILE RIVER
ERITREA
GULF of ADEN
FRENCH SOMALILAND
SUDAN
BRITISH SOMALILAND
ETHIOPIA
ITALIAN SOMALILAND
4
UGANDA
EQUATOR
KENYA COLONY
OCEAN
EQUATOR
VICTORIA NYANZA
3
2
3
INDIAN
TANGANYIKA TERRITORY
1
0 100 200 300 400 500 MILES
· SCALE ·

FIGURE 13.—Distribution of *Sylvietta whytii*.

1. *S. w. whytii.*
2. *S. w. jacksoni.*
3. *S. w. loringi.*
4. *S. w. abayensis.*

Zedlitz has synonymized *loringi* with *major*, but in this he is mistaken, as *major* is nothing but a straight synonym of *jacksoni*, from which form *loringi* is distinct. Inasmuch as Sclater does not grant the latter racial standing, it may be of advantage to see what opinions other workers have reached. Sclater and Mackworth-Praed[15] write that they "have no specimens from Fort Hall (type locality) * * * but two specimens from the Athi River in the close vicinity are indeed somewhat paler than typical specimens of *S. w. jacksoni*. This is only to be expected as Fort Hall is a place where the desert fauna would naturally meet with the highland fauna and an intermediate form be thus produced."

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[15] Ibis, 1918, p. 669.

Van Someren[16] is "prepared to support this race as a pale form of *S. w. jacksoni*, and give as its range the East Ukambani district from south of Fort Hall, extending to the east of Kilimanjaro—i. e., inhabiting the whole of the thorn-bush and scrub country and the Yatta Plains."

4. *S. w. abayensis:* The southern Shoan lake district (north to Djalaban, south of Adis Abeba) and the country immediately around Lake Rudolf, west to Turkanaland and the Turkwell-Moroto-Karamojo region of northeastern Uganda. This form is similar to *loringi*, but paler, the color of the underparts fading to whitish on abdomen; and the upperparts slightly more olivaceous than in *loringi*. I have seen nine typical examples (including the type) of *abayensis* and have seen the type and two others of *loringi*.

Sclater and Mackworth-Praed[17] write that they cannot distinguish between birds from southern Shoa and typical *jacksoni*. This is rather difficult to believe; if they had said *loringi*, it would be more comprehensible. Zedlitz finds that *abayensis* is recognizable.

As intimated above, the present specimens are not really typical *jacksoni* (typical examples from the Sotik district seen) but are somewhat intermediate between that form and *loringi*. They are best referred to *jacksoni*, however. In comparing races it must be remembered that females tend to be more tawny below than males of the same form. Lack of appreciation of this factor appears to be partly responsible for the conclusions (now no longer of much value for other reasons as well) of Ogilvie-Grant[18] and of Reichenow.[19]

The present specimens are in somewhat worn plumage. Their dimensions are as follows: Males—wing, 58, 59; tail, 26, 27; culmen from base, 13.5, 14; tarsus, 18, 19 mm. Females—wing, 55, 56, 59; tail, 23, 24, 24.5; culmen, 12.5, 13, 13; tarsus, 17, 17, 18.5 mm.

The reason that I consider *Sylvietta minima* a distinct species is that it occurs together with *S. w. whytii* (*fischeri*) at Lamu, according to van Someren.[20]

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[16] Nov. Zool., vol. 29, p. 226, 1922.

[17] Ibis, 1918, p. 669.

[18] Ibis, 1900, pp. 154–157.

[19] Orn. Monatsb., 1900, pp. 21–22.

[20] Nov. Zool., vol. 29, pp. 226–227, 1922.

SYLVIETTA WHYTII ABAYENSIS Mearns

FIGURE 13

Sylvietta whytii abayensis MEARNS, Smithsonian Misc. Coll., vol. 61, no. 20, p. 4, 1913: Gato River, Ethiopia.

SPECIMENS COLLECTED:

1 female, Gidabo River, Ethiopia, March 17, 1912.
3 males, 4 females, Gato River near Gardula, Ethiopia, April 6–May 14, 1912.
1 female, Tertale, Ethiopia, June 8, 1912.

Soft parts: Iris yellowish brown; bill olivaceous-brown above, pale reddish brown below; feet and claws light brown.

One of the Gato River males is the type of this race.

This race is only slightly different from *loringi*, but as the difference (paler color below, more olivaceous tone above) seems to be constant, I consider it recognizable.

To the brief account of its range given under the preceding race, I may add here that this race appears to be completely isolated from the others, or, at least, the species is not yet known from the intervening area of northern Kenya Colony.

The size variations of the present series are given in table 35.

TABLE 35.—*Measurements of nine specimens of* Sylvietta whytii abayensis *from Ethiopia*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Gato River	Male (type)	61.5	25.0	13.0	18.0
Do	Male	60.0	23.0	13.0	17.0
Do	do	61.0	26.0	13.0	18.0
Gidabo River	Female	56.5	23.0	12.5	17.5
Gato River	do	57.0	23.0	12.0	17.0
Do	do	59.0	23.5	13.0	17.0
Do	do	57.0	22.5	12.0	18.0
Do	do	57.5	24.0	12.5	17.0
Tertale	do	57.5	23.5	13.0	17.0

The birds are in somewhat abraded plumage, but I can not detect any signs of molting. Unfortunately, nothing seems to be known of the breeding season of this bird, but it is probably in April, as its relative, *S. brachyura leucopsis*, nests during that month in the Gurra country.

Erlanger[21] was the first to record this species from Ethiopia (Djalaban and Gambo). I am not aware of any other published records from that country, but Sclater and Mackworth-Praed[22] mention a series collected by Zaphiro in southern Shoa.

Besides the actual specimens collected, Mearns observed this bird as follows: Aletta, March 7–13, 1 seen; between the Abaya Lakes and Gardula, March 26–29, 50; Sagon River, June 3–6, 2 noted; Tertale, June 7–12, 5 birds; Wobok, June 18, 2 birds seen. He noted the song as a pleasant trilling warble similar to that of some of the Mniotiltidae of North America.

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[21] Journ. für Orn., 1905, p. 732.

[22] Ibis, 1918, p. 669.

SYLVIETTA ISABELLINA Elliot

Sylviella isabellina Elliot, Field Columbian Mus. Publ. Orn. Ser., Publ. 17, vol. 1, no. 2, p. 44, 1897: Le Gud, Somaliland.

Specimens collected: 1 female, 24 miles south of Malele, Kenya Colony, July 29, 1912.

I have not enough comparative material to attempt a critical study of this species and therefore follow Sclater[23] in considering *gaikwari* Sharpe, *erlangeri* Reichenowi, and *macrorhyncha* van Someren as synonyms of *isabellina* Elliot. I must admit, however, that I am not convinced of the accuracy of Sclater's conclusions. Reichenow's form *erlangeri* is synonymized with *gaikwari* by Zedlitz[24] on apparently good grounds (the type of *gaikwari* having an abnormally long bill as shown by further material), and these two may well be the same, but I feel that *isabellina*, *gaikwari*, and *macrorhyncha* are probably distinct. The first is said to be washed with greenish on the upperparts, which the latter two certainly are not; *macrorhyncha* is less pure grayish above than *gaikwari* and has a longer, more slender bill, and paler underparts. If these races are recognized, as I feel they will have to be when more material becomes available, the present specimen will have to be referred to van Someren's race *macrorhyncha*, of which form it appears to constitute the northernmost record. Its dimensions are as follows: Wing, 59.5; tail, 24.5; culmen from base, 16; tarsus, 18 mm. It is in rather abraded condition.

According to van Someren,[25] birds from Mandaira are like *macrorhyncha* but paler below and also smaller; wing, 54–56 mm.

Erlanger[26] found this bird (*gaikwari*, if distinct) breeding late in March in Gurraland. The nests are said to be purse-shaped and suspended from the tips of small branches of the acacia trees. Two or three eggs appear to comprise a set.

SYLVIETTA LEUCOPHRYS LEUCOPHRYS Sharpe

Sylviella leucophrys Sharpe, Ibis, 1891, p. 120: Mount Elgon.

Specimens collected: 1 male, Escarpment, 7,390 feet, Kenya Colony, September 10, 1912.

Sclater[27] considers *keniensis* Mearns a synonym of *leucophrys*. I am not aware that he has examined a topotypical specimen of the former (which, as far as I know, is represented only by the unique type). I have examined the type of *keniensis* and have compared it with specimens of *leucophrys* from Escarpment and Ruwenzori and find it to be perfectly distinct. Of course, it must be admitted that I have seen only one Mount Kenya bird (*keniensis*), and van Someren[28] has recorded that a bird from the Aberdare Mountains does not differ from topotypical *leucophrys* from Mount Elgon. It seems, then, that *keniensis* is wholly restricted to Mount Kenya.

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[23] Systema avium Æthiopicarum, pt. 2, p. 534, 1930.

[24] Journ. für Orn., 1916, p. 24.

[25] Journ. East Africa and Uganda Nat. Hist. Soc., 1930, p. 43.

[26] Journ. für Orn., 1905, pp. 731–732.

[27] Systema avium Æthiopicarum, pt. 2, p. 535, 1930.

There are three forms of this crombec, as follows:

1. *S. l. leucophrys:* Ruwenzori to Mount Elgon and to the Aberdares and Escarpment.

2. *S. l. keniensis:* Known only from Mount Kenya. This race is somewhat paler above, less brownish, more olivaceous on the back, has the superciliary stripes posteriorly suffused with light brownish, and is generally paler below.

3. *S. l. chloronota:* The eastern Belgian Congo from the forests west of Lake Tanganyika and the Kivu district to southern Ankole in Uganda. This race has a yellowish-green back.

The present specimen is in fresh plumage and has the following dimensions: Wing, 54; tail, 23; culmen from base, 10; tarsus, 19.5 mm. An unsexed bird from the eastern slopes of the Ruwenzori range is slightly larger: Wing, 58.5; tail, 24.5; culmen, 11; tarsus, 21 mm.

EREMOMELA GRISEOFLAVA GRISEOFLAVA Heuglin

Figure 14

Eremomela griseoflava Heuglin, Journ. für Orn., 1862, p. 40: Bogosland.

Specimens collected:

1 male, Dire Daoua, Ethiopia, December 9, 1911.
1 male, 1 female, Sadi Malka, Ethiopia, February 2, 1912.
1 male, Serre, Ethiopia, February 13, 1912.

In northeastern Africa no fewer than seven forms of this warbler are known to occur. The material available for study has been inadequate to attempt a thorough review of these races, but it supports the conclusions arrived at by Sclater.[29] The seven forms are as follows:

1. *E. g. griseoflava:* The Red Sea Province of the Sudan, Eritrea, Bogosland, Sennar, south through Ethiopia to northern Shoa and to Gurraland.

2. *E. g. archeri:* Northern British Somaliland.

3. *E. g. alexanderi:* From the White Nile to Kordofan and Lake Chad.

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[28] Nov. Zool., vol. 29, p. 225, 1922.

[29] Systema avium Æthiopicarum, pt. 2, pp. 537–538, 1930.

4. *E. g. karamojensis:* The Moroto and Karamojo districts of northeastern Uganda through Turkanaland to the Lake region of southern Shoa.

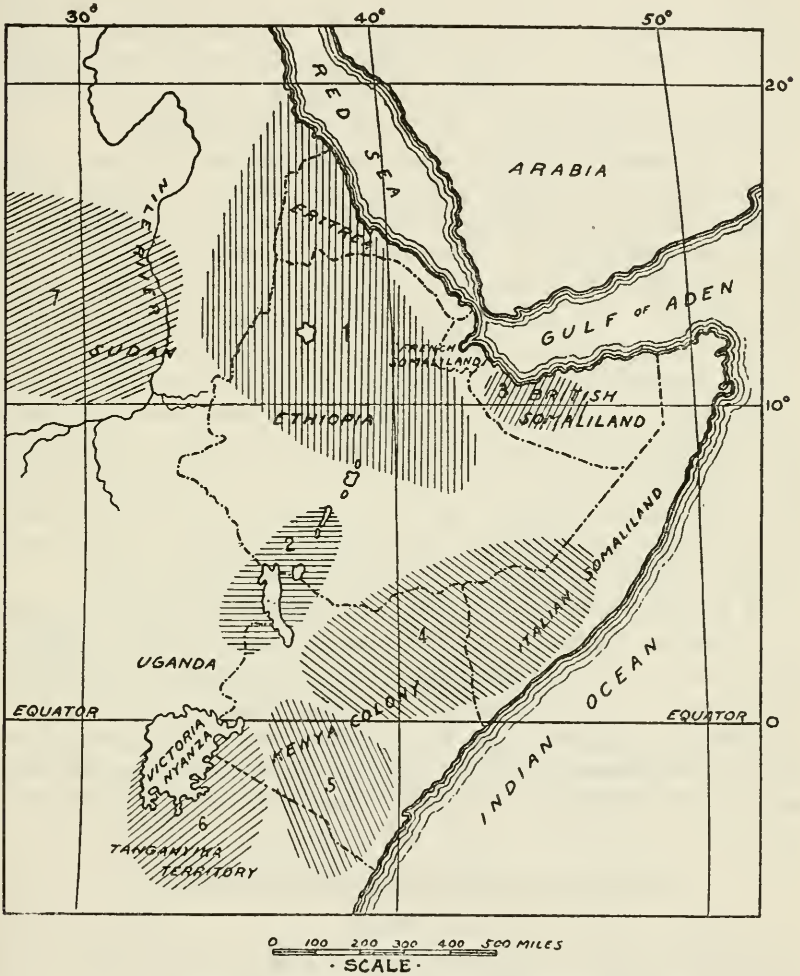
30°
40°
50°
20°
10°
0
RED SEA
ARABIA
NILE RIVER
ERITREA
GULF OF ADEN
SUDAN
FRENCH SOMALILAND
BRITISH SOMALILAND
ETHIOPIA
ITALIAN SOMALILAND
UGANDA
KENYA COLONY
EQUATOR
EQUATOR
VICTORIA NYANZA
TANGANYIKA TERRITORY
INDIAN OCEAN
1
2
3
4
5
6
7
0 100 200 300 400 500 MILES
· SCALE ·

FIGURE 14.—Distribution of *Eremomela griseoflava.*

1. *E. g. griseoflava.*	5. *E. g. abdominalis.*
2. *E. g. karamojensis.*	6. *E. g. crawfurdi.*
3. *E. g. archeri.*	7. *E. g. alexanderi.*
4. *E. g. flavicrissalis.*	

5. *E. g. flavicrissalis:* Southern Italian Somaliland, southeastern Ethiopia (southern Gallaland) through Jubaland, west in northern Kenya Colony to Marsabit, south to the Northern Guaso Nyiro River. In giving all this as the range of *flavicrissalis*, I assume that *erlangeri* is not a distinct form (see, however, under the discussion of this race).

6. *E. g. abdominalis:* Central Kenya Colony from Lekiundu River, Fort Hall, Kikuyum Tsavo, and Campi-ya-bibi, south to central Tanganyika Territory (Igonda and Songea).

7. *E. g. crawfurdi:* The Sotik, Loita, and southern Kavirondo districts of Kenya Colony south to the Mwanza district in Tanganyika Territory. If *tardinata* Hartert (described from Sagayo near Mwanza) should prove to be valid, the range of *crawfurdi* would end, in a southward direction, in the Ikoma area.

Of these seven races, *abdominalis* is the darkest and most richly colored. It has the entire abdomen, and flanks, strontian yellow. The form most like it is *karamojensis*, in which the abdomen and flanks are citron-yellow. This race also averages slightly paler grayish on the throat and breast, and has the rump very slightly more greenish. The form *griseoflava* is still paler, having the abdomen and flanks barium yellow; *archeri* has the abdomen pale yellowish only along the midventral portion, the rest and the flanks being whitish; *alexanderi* is said to be much paler than *griseoflava* and to have more greenish yellow on the rump; *crawfurdi* is a paler form, which is said to differ from all the others in having well-marked white superciliary stripes. All these six forms are large, having wings of from 50 to 59 mm, while the seventh race, *flavicrissalis*, is small, wings 45 to 50 mm. In color it resembles *archeri*.

Von Heuglin and Blanford found the typical form of this warbler in the Anseba district on the Eritrean-Ethiopian border. Zedlitz[30] found it to have a very considerable range altitudinally from Barca at 700 meters to the high plateau at 2,400 meters.

Erlanger[31] observed it in the luxurious vegetation along stream banks in the Hawash and Ginir districts. He writes that the breeding season is in May in the Hawash region. On June 6, he found two juvenal birds only recently out of the nest.

EREMOMELA GRISEOFLAVA KARAMOJENSIS Stoneham

FIGURE 14

Eremomela flaviventris karamojensis STONEHAM, Bull. Brit. Orn. Club, vol. 45, p. 78, 1925: Northern Karamoja, northeastern Uganda.

SPECIMENS COLLECTED:

1 male, Lake Abaya, Ethiopia, March 20, 1912.
4 males, Bodessa, Ethiopia, May 22–June 1, 1912.

The range and characters of this race have already been discussed and need not be repeated here. The Lake Abaya specimen is somewhat intermediate between *karamojensis* and typical *griseoflava* but is nearer to the former. On the whole, *karamojensis* is slightly smaller than *griseoflava*, as the figures given in table 36 show.

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[30] Journ. für Orn., 1911, p. 69.
[31] Journ. für Orn., 1905, p. 733.

Besides the specimen collected, Mearns saw about 20 of these warblers at Bodessa, May 19–June 3; 2 seen at Sagon River, June 6; and 2 at Tertale, June 7.

TABLE 36.—*Measurements of nine specimens of* Eremomela griseoflava *from Ethiopia*

E. G. KARAMOJENSIS

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Dire Daoua	Male	55.0	31.0	11.0	17.5
Sadi Malka	do	56.0	32.0	10.5	17.0
Do	Female	53.5	30.0	10.0	16.0
Serri	Male	57.0	32.0	10.5	16.0
E. G. GRISEOFLAVA					
Lake Abaya	Male	54.0	29.5	11.0	17.0
Bodessa	do	51.5	30.5	10.5	17.0
Do	do	55.0	31.5	11.0	16.5
Do	do	53.0	33.0	11.0	17.0
Do	do	54.5	30.5	11.0	16.5

EREMOMELA GRISEOFLAVA FLAVICRISSALIS Sharpe

Eremomela flavicrissalis SHARPE, Proc. Zool. Soc. London, 1895, p. 48: Shebelli, western Somaliland.

SPECIMENS COLLECTED:

1 female, Le-se-dun, Kenya Colony, July 26, 1912.
1 male, Malele, Kenya Colony, July 27, 1912.
1 male, 18 miles south of Malele, Kenya Colony, July 28, 1912.
1 female, 25 miles south of Malele, Kenya Colony, July 29, 1912.
1 female, 25 miles north of Northern Guaso Nyiro River, Kenya Colony, July 30, 1912.

As already intimated, there is some doubt as to whether *erlangeri* is really a synonym of *flavicrissalis.* I have seen no specimens of the former and therefore do not care to attempt a definite decision, but several authors who have had material from southern Somaliland and from the Marsabit area find that the birds do break up into two racial forms. Zedlitz[32] writes that *flavicrissalis* has a wing length of 50 mm, and *erlangeri* 45 to 48 mm. This difference does not hold, as the present birds are typical of *flavicrissalis* in color and have wings measuring 46 to 48 mm. The difference between the two groups (if they be distinct) is one of color; the abdomen is pale yellow in *erlangeri*, while in *flavicrissalis* it is white with only a very narrow midventral pale yellowish area. Van Someren[33] writes that four birds from Lugh are quite distinct from five specimens from Marsabit and the Northern Guaso Nyiro River, the former having the yellow "of the vent of a deeper shade and more extensive. * * * Five males from the N. Guasso and Marsabit, have the yellow of the vent very pale indeed and limited in extent. As all are constant in this respect, it is more than likely that the race will have to be recognized." It appears from this that van Someren suggests that the birds of northern Kenya Colony may be a new, undescribed form regardless of whether *erlangeri* be distinct from *flavicrissalis*, since he considers the Lugh specimens "typical *flavicrissalis* or *erlangeri*, if that race can be upheld." I doubt that the birds of the northern districts of Kenya Colony are separable from typical *flavicrissalis*, but material is needed to prove the point.

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[32] Journ. für Orn., 1916, p. 100.

[33] Journ. East Africa and Uganda Nat. Hist. Soc., no. 35, p. 67 (143), 1930.

The five specimens collected agree with van Someren's description of his Marsabit and Northern Guaso Nyiro birds. All five are in rather worn plumage. Their dimensions are given in table 37.

The colored figure given by Erlanger [34] agrees fairly closely with the present specimens.

Erlanger [35] found a nest with two eggs on May 8 at Sarigo in the Garre-Lewin district. This is all that has been recorded about the breeding season of this bird.

TABLE 37.—*Measurements of five specimens of* Eremomela griseoflava flavicrissalis *from Kenya Colony*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Malele	Male	46.5	23.5	10.0	16.0
18 miles south of Malele	do	48.0	25.0	9.5	15.0
Le-se-dun	Female	46.0	23.0	9.5	15.5
24 miles south of Malele	do	48.0	24.0	9.5	16.5
25 miles north of Northern Guaso Nyiro River.	do	47.5	26.0	9.5	14.5

EREMOMELA GRISEOFLAVA ABDOMINALIS Reichenow

FIGURE 14

Eremomela flaviventris abdominalis REICHENOW, Die Vögel Afrikas, vol. 3, p. 635, 1905: East Africa; type in Berlin Museum, from Igonda, Tabora district, Tanganyika Territory.

SPECIMENS COLLECTED: 1 male, Lekiundu River, Kenya Colony, August 5, 1912.

This race is the most richly colored of all the forms found in northeastern and east equatorial Africa.

The single specimen obtained is in worn plumage and therefore is rather duller than another example in fresher plumage. Its measurements are as follows: Wing, 56; tail, 30.5; culmen, 10.5; tarsus, 16 mm.

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[34] Journ. für Orn., 1905, pl. 17, fig. 2.

[35] Ibid., pp. 733–734.

It seems that the Lekiundu River is about the northern limit of the range of *abdominalis*, as a little farther to the north, on the Northern Guaso Nyiro River, van Someren[36] procured birds of the *flavicrissalis* (or *erlangeri*) type with the yellow on the abdomen very pale and limited in extent, and with wings 49 to 50 mm in length. In his field notebook Mearns records seeing two "yellow-bellied, gray-breasted Eremomelas," similar to the Lekiundu bird, along the Northern Guaso Nyiro River, but in the absence of specimens we can not extend the range of *abdominalis* north of the present locality record.

Mearns saw 4 of these birds along the Lekiundu River, August 4–8; and 2 on the Tana River, August 17.

CAMAROPTERA BREVICAUDATA ABESSINICA Zedlitz

FIGURE 15

Camaroptera griscoviridis abessinica ZEDLITZ, Journ. für Orn., 1911, p. 338: Harrar, Ethiopia.

SPECIMENS COLLECTED:

1 adult, 1 immature, male, Sadi Malka, Ethiopia, December 20, 1911.
1 female, Hawash River, Ethiopia, February 8, 1912.
1 male, Botola, Sidamo, Ethiopia, March 5, 1912.
3 males, Aletta, Sidamo, Ethiopia, March 7–11, 1912.
11 males, 3 females, Gato River near Gardula, Ethiopia, April 10–May 11, 1912.
2 males, Bodessa, Ethiopia, May 23–June 1, 1912.
1 male, El Ade, Ethiopia, June 13, 1912.

In working over the forms of *Camaroptera* in the Frick and other collections, it became necessary to review all the species and subspecies of this genus. Zedlitz[37] monographed the group very ably but unfortunately misapplied the names *brevicaudata* and *griseiventris*. This was subsequently straightened out by Hartert.[38] On the whole, I find that Zedlitz's conclusions are correct, but differ in considering *erlangeri* to occupy the entire coastal strip of Kenya Colony from Mombasa, inland to Changamwe, to southern Italian Somaliland. This will be taken up in more detail later on, as will also the ranges of *abessinica* and *griseigula*, which appear to have been much misunderstood.

It has been my personal experience that a perusal of the literature leaves one with a hazy notion of the specific groups, to say nothing of the racial forms, of this genus. Therefore, I append a brief key to the species, based on adult birds.

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[36] Journ. East Africa and Uganda Nat. Hist. Soc., no. 35, p. 67 (143), 1930.

[37] Journ. für Orn., 1911, pp. 328–344.

[38] Nov. Zool., vol. 27, p. 459, 1920.

KEY TO SPECIES OF CAMAROPTERA

a^1. With distinct yellowish superciliary stripes ---------- **superciliaris**
a^2. Without distinct yellowish superciliary stripes.
  b^1. Under wing coverts and bend of wing rusty brown ---------- **toroensis**
  b^2. Under wing coverts and bend of wing yellowish or yellowish green.
    c^1. Back green, distinct from gray of head ---------- **brachyura**
    c^2. Back grayish or brownish gray like head ---------- **brevicaudata**

Of these the only species that directly concerns us here is *brevicaudata.* This species is represented by four races in northeastern Africa, as shown on the map (fig. 15). These races are: (1) The typical one, which inhabits the Red Sea Province, Sennar, Kassala,

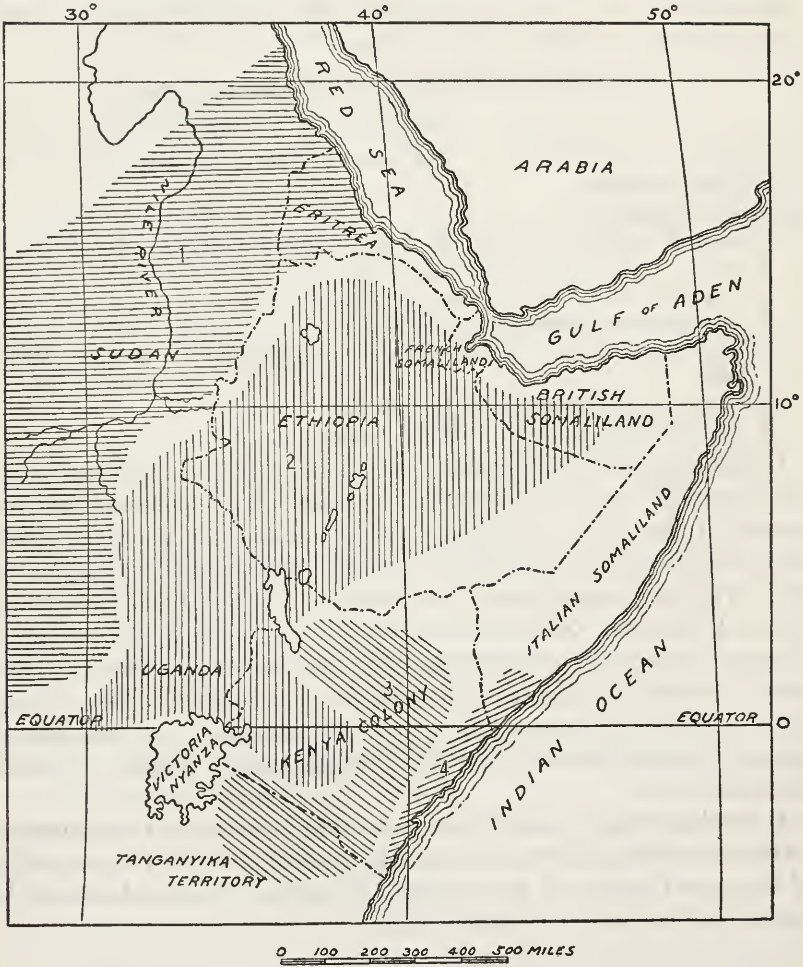
30°
40°
50°
20°
10°
0
RED SEA
ARABIA
ERITREA
NILE RIVER
1
GULF OF ADEN
SUDAN
FRENCH SOMALILAND
BRITISH SOMALILAND
ETHIOPIA
2
ITALIAN SOMALILAND
UGANDA
3
KENYA COLONY
OCEAN
EQUATOR
EQUATOR
VICTORIA NYANZA
4
INDIAN
TANGANYIKA TERRITORY
0 100 200 300 400 500 MILES
· SCALE ·

FIGURE 15.—Distribution of *Camaroptera brevicaudata* in northeastern Africa.

1. *C. b. brevicaudata.*
2. *C. b. abessinica.*
3. *C. b. griseigula.*
4. *C. b. erlangeri.*

the White Nile south to Taufikia or thereabouts, and the northeastern Belgian Congo (Uelle district) west through Kordofan to Darfur; (2) *abessinica*, which occurs throughout the elevated portions of Ethiopia and of British Somaliland, south through the Mongalla Province of the Sudan, Turkanaland, and Uganda to the Ruwenzori Mountains, east through the Elgon and north Kavirondo districts to Mount Kenya and the highlands of the Kikuyu country in Kenya Colony; (3) *griseigula*, which is found in the lower plains of northern Tanganyika Territory, east to the Kilimanjaro district, north through the Teita district and the Taru area to the Tana Valley, thence west to Marsabit and southern Rendile; it will be seen that in Kenya Colony this form occurs to the north, east, and south of *abessinica*, while northwestern individuals of *griseigula* are surrounded on the north and south by *abessinica*, a state of affairs that has caused much confusion among students of African birds, and which is responsible for many misidentifications in published work, (4) the coastal race, *erlangeri;* this form Sclater [39] considers to be a synonym of *griseigula*, but in this I feel he is mistaken. These four forms may be differentiated by means of the following characters, but it should be remembered that the differences are average, not absolute, in nature: The dorsal coloration (in adults) is gray, fairly free of any brownish cast, in *abessinica* and *erlangeri;* in *griseigula* and *brevicaudata* it is much washed with brownish. Of the first two, with relatively pure grayish backs, *erlangeri* has the abdomen largely pure white, and is small, wings 51 to 56 mm, while *abessinica* has the abdomen chiefly grayish, the white restricted to a small median area, and is larger, wings 54 to 59 mm. The two races with brownish backs may be told by the fact that *griseigula* has the sides and flanks washed with brownish, while in *brevicaudata* these parts are grayish. As might be expected, in Kenya Colony many intermediates between *abessinica* and *griseigula* occur, and in northwestern Uganda and the Mongalla area of the Sudan, intermediates between *abessinica* and *brevicaudata* are found.

Van Someren [40] records *Camaroptera brevicaudata pileata* from Mombasa, Changamwe, Manda, and Lamu. These birds I think are all *erlangeri*, as they have grayish-brown tails, while *pileata*, which is a race of *C. brachyura* and not of *C. brevicaudata*, has the tail green. It happens that *C. brachyura pileata* occurs together with *C. brevicaudata erlangeri* at Mombasa, whence I have seen specimens of both.

In comparing specimens of *abessinica* with others of *griseigula*, one must take care to choose wholly comparable individuals, as immature *abessinica* often have some brownish wash above and below, making them look much like *griseigula*, while worn examples of the latter appear grayer above, quite like freshly plumaged *abessinica.*

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[39] Systema avium Æthiopicarum, pt. 2, p. 544, 1930.

[40] Nov. Zool., vol. 29, p. 228, 1922.

Since the above account was written, Granvik [40a] has described two more races from Kenya Colony—*albiventris* from the coastal belt, which I consider a synonym of *erlangeri*, and *aschani* from Mount Elgon, which may prove to be distinct from *abessinica*, inhabiting parts of western Kenya Colony and also eastern Uganda. Of this race, said to have the head and mantle darker than in *abessenica*, I have seen no material.

The size variations of the present series may be judged from the figures (adults only) given in table 38.

TABLE 38.—*Measurements of 23 specimens of* Camaroptera brevicaudata abessinica *from Ethiopia*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Sadi Malka	Male	55.5	41.5	15.5	21.5
Botola, Sidamo	do	56.5	--------	15.5	23.0
Aletta, Sidamo	do	53.0	36.0	15.0	21.0
Do	do	55.0	40.0	15.0	23.0
Do	do	54.0	39.0	15.5	20.5
Gato River near Gardula	do	59.0	42.0	16.0	23.0
Do	do	58.5	42.0	15.5	21.0
Do	do	58.0	40.5	15.5	22.0
Do	do	57.0	42.0	16.0	22.0
Do	do	57.0	--------	--------	--------
Do	do	56.0	41.0	15.0	21.0
Do	do	58.5	41.5	15.5	21.0
Do	do	55.5	39.0	15.0	21.5
Do	do	57.0	43.0	16.0	21.5
Do	do	56.0	37.0	15.5	22.0
Do	do	54.5	38.5	15.0	20.5
Bodessa	do	54.0	37.5	15.5	22.5
Do	do	58.0	39.0	15.0	22.0
El Ade	do	56.0	42.0	15.5	22.0
Hawash River	Female	55.0	37.0	15.0	21.0
Gato River near Gardula	do	52.5	33.5	15.0	21.5
Do	do	55.5	36.0	15.5	21.5
Do	do	--------	33.0	14.5	20.5

Neumann [41] records a male from Lake Abaya with a wing length of 60 mm.

One of the Gato River specimens (taken on April 27) is molting the rectrices. The majority of the birds collected in April and May are in fairly fresh plumage; the majority of those shot in December and March are abraded.

[40a] Rev. Zool. et Bot. Afr., vol. 25, pp. 101–103, 1934.

[41] Journ. für Orn., 1906, p. 278.

This bird is very common in the forests of the Abyssinian highlands. According to Erlanger,[42] the breeding season is probably in February, March, April, and May. He did not succeed in actually finding a nest but collected a displaying male on May 5 at Debaasso, between Harrar and Adis Abeba. On dissection it was found to have much swollen testes.

The observational records of this warbler in Mearns's diary indicate that it is more abundant in southern Shoa than in the Hawash district or around Adis Abeba. Thus, Mearns merely records it as "seen between Dire Daoua and Gada Bourca," while in Sidamo and southwards a large number of entries testify to its abundance—Aletta, March 7–13, 10 seen; Loco, March 13–15, 4 birds, Gidabo River, March 15–17, 4 seen; White Lake Abaya, March 24–26, 4; between the Abaya Lakes and Gardula, March 26–29, 4 noted; Gato River near Gardula, March 29–May 17, 500; Anole village, May 18, 20; Sagon River, May 19, 20 birds; Bodessa, May 19–June 3, 25; Sagon River, June 3–6, 90; Tertale, June 7–12, 14 seen; El Ade, June 12–13, 10 birds; Mar Mora, June 14, 20 noted; Turturo, June 15–17, 50; Anole, June 17, 4 birds; Wobok, June 18, 10 seen; Saru, June 19, 20 birds; Yebo, June 20, 4; Karsa Barecha, June 21, 4 noted.

CAMAROPTERA BREVICAUDATA GRISEIGULA Sharpe

FIGURE 15

Camaroptera griseigula SHARPE, Ibis, 1892, p. 158: Voi River, Teita district, Kenya Colony.

SPECIMENS COLLECTED:

1 male (immature?) Meru forest, Equator, Kenya Colony, August 10, 1912.
2 males, Tana River at mouth of Thika River, Kenya Colony, August 24, 1912.
1 male, Athi River near Juja Farm, Kenya Colony, August 31, 1912.
2 males, Athi Station, Uganda Railway, Kenya Colony, September 1, 1912.

The characters and range of this race have already been discussed. It only remains to be said that all the above-listed specimens are somewhat intermediate between *griseigula* and *abessinica* but on the whole are nearer to the former, with which race they are here identified. Inasmuch as this race occurs in a region with few, small, and scattered wooded spots, its range is decidedly discontinuous. Of all the subspecies, the present one is the least well marked.

Besides the specimens collected, Mearns observed this bird as follows: Endoto Mountains, July 19–24, 3 seen; Meru Forest, August 10, 50; 20 miles east of Meru, August 11, 50 noted; Tharaka district, August 12–14, 20 birds; Tana River, August 17–23, 6 seen; junction of Tana and Thika Rivers, August 23–26, 20 birds noted;

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[42] Journ. für Orn., 1905, pp. 730–731.

east of Ithanga Hills, August 26, 4 seen; 20 miles up the Thika River, 6 birds; west of Ithanga Hills, 10 seen, between Thika and Athi Rivers, August 29, 10 noted; Athi River near Juja Farm, August 30, 2 birds observed.

Genus CISTICOLA Kaup

The treatment given the forms of this difficult genus in this report follows the conclusions arrived at by Lynes in his superb monograph.[43] This work has rendered a perusal of earlier literature quite unnecessary, and so no discussions of names, synonyms, etc., are included here. The most critical test of a monograph such as Lynes's is applying it to a large museum collection, and I am happy to add a quite unnecessary word of praise to the many already accorded it. Lynes's book has not fallen down in a single case (I have reidentified all the Cisticolas in the United States National Museum with it at hand) and it has brought order out of chaos in a manner that is far easier to admire than to imitate.

CISTICOLA JUNCIDIS UROPYGIALIS (Fraser)

Drymoica uropygialis Fraser, Proc. Zool. Soc. London, 1843, p. 17: Accra, Gold Coast.

Specimens collected:

2 males, 1 female, Hawash River, Ethiopia, February 9–12, 1912.
1 male, Black Lake Abaya, Ethiopia, March 25, 1912.
1 male, Turturo, Ethiopia, June 16, 1912.

The Hawash River specimens are in freshly acquired winter plumage. Their dimensions are as follows: Males—wing, 51, 51; tail, 46, 43 mm. Female—wing, 45; tail, 41 mm. The bird from Black Lake Abaya is somewhat abraded; its measurements are: Wing, 48; tail, 40 mm. The Turturo specimen is a little less worn; it measures: Wing, 48; tail, 37 mm. It is in summer plumage, while the first three are in winter plumage.

CISTICOLA JUNCIDIS PERENNIA Lynes

Cisticola juncidis perennia Lynes, Ibis, 1930, Suppl., p. 105: Mokia, near Lake George, Uganda.

Specimens collected: 1 female, Northern Guaso Nyiro River, Kenya Colony, August 3, 1912.

This race of the fantail warbler ranges from northern Tanganyika Territory north at least to Marsabit in northern Kenya Colony, and from Zanzibar in the southeast to the Uelle district, Belgian Congo, in the northwest.

The present specimen is in a winter plumage stage, something like *uropygialis*. It has a wing length of 48 mm; tail, 36 mm.

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[43] Ibis, 1930, Special Supplement, pp. 1–673, pls. 1–20.

CISTICOLA ARIDULA LAVENDULAE Ogilvie-Grant and Reid

Cisticola lavendulae Ogilvie-Grant and Reid, Ibis, 1901, p. 650: Aroharlaise (Ari Harlaise), British Somaliland.

Specimens collected: 1 male, Anole, Ethiopia, June 17, 1912.

This specimen matches the description and figure of *lavendulae* given by Lynes.[44] It constitutes a new southwestern extension of range, as the form was formerly known only from Somaliland and adjacent parts of southern Ethiopia, where Erlanger and Hilgert obtained examples at Dadab, Leila to Gildessa, and Felwa, Hawash Valley. The identification is somewhat open to question in the present case, as no authentic *lavendulae* material has been available to me for study and comparison. Specimens of *tanganyika* are much darker than this bird.

The dimensions of the single example obtained by the expedition are: Wing, 49; tail, 38 mm.

According to Lynes, the breeding season appears to be in January in southern Ethiopia, and in November and December in British Somaliland, but very little is known of its habits with any degree of definiteness.

CISTICOLA ARIDULA TANGANYIKA Lynes

Cisticola aridula tanganyika Lynes, Ibis, 1930, Suppl., p. 126: Morogoro, Tanganyika Territory.

Specimens collected: 2 males, Athi Station, Uganda Railway, Kenya Colony, September 1, 1912.

These two specimens have the dark fuscous-black marks on the upperparts more developed (or at least more conspicuous) than in the illustration given by Lynes[45] but appear to be definitely of this race. Their dimensions are as follows: Wing, 49, 49; tail, 36, 36 mm, respectively. Both are in considerably abraded plumage.

The range of *tanganyika* includes the drier parts of the northern half of Tanganyika Territory, and of Kenya Colony. Lynes writes that in northeastern Kenya Colony the birds become paler as one goes north, intergrading with *lavendulae* "towards S. Ethiopia and Somaliland, but whereabouts the *mode* of dress becomes seasonal there is as yet nothing to show. To the north-eastward, the Athi River seems near the limit of typical *tanganyika*." Birds from the lower stretches of the Tana River and from Marsabit are more or less intermediate between the two forms.

The breeding season is from April to July, and, to a lesser extent, during November and December.

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[44] Ibis, 1930, Suppl., p. 128, pl. 4, fig. 14.

[45] Ibis, 1930, Suppl., pl. 4, fig. 13.

CISTICOLA BRUNNESCENS BRUNNESCENS Heuglin

Cisticola brunnescens Heuglin, Journ. für Orn., 1862, p. 289: Godofelasi, Seraweh Province, Ethiopia.

Specimens collected:

1 male, 1 female, Adis Abeba, Ethiopia, January 10, 1912.
1 male, 2 females, Arussi Plateau, Ethiopia, February 14–17, 1912.

These specimens are all in winter plumage, agreeing with the dates for this plumage given by Lynes.[46] Their dimensions are as follows: Males—wing, 52, 57; tail, 30, 33; culmen from base, 12.5, ——. Females—wing, 51, 53, 55; tail, 32, 32, 33; culmen from base, 12.5, 12, 12 mm.

Lynes does not give any details as to the altitudinal range of this warbler, but the limits must be very wide. Mearns recorded the altitude on the Arussi Plateau birds as 9,500 feet. On the other hand, Lynes records this form in western Somaliland, which is much lower.

The breeding season in southern Ethiopia appears to be from May to September.

CISTICOLA CHINIANA HUMILIS Madarász

Cisticola humilis Madarász, Orn. Monatsb., 1904, p. 168: Settima Mountains, Kenya Colony.

Specimens collected:

2 males (1=female), Tharaka district, Kenya Colony, August 14, 1912.
1 male, Athi River near Juja Farm, Kenya Colony, August 31, 1912.

These three specimens are really intermediate between *humilis* and *ukamba* but are nearer to the former race, with which they are here identified. The specimen from the Tharaka district, which I take to be a female in spite of the fact that the collector sexed it as a male, has a wing length of only 62.5 mm, tail 54 mm. The other two specimens have wings measuring 66 mm each. All three birds are in good fresh plumage.

Lynes[47] records this bird from only as far north as Mount Elgon, Lake Baringo, Lake Hannington, Barsaloi, and the Northern Guaso Nyiro River. In the collections of the United States National Museum there are two specimens of this race from the summit of Mount Lololokui (6,000 feet). This mountain, north of Mount Kenya by a very considerable distance, constitutes another far northern locality from which *humilis* is known.

In a southerly direction the form is known all the way to the Tanganyikan border, always only in the high country.

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[46] Ibis, 1930, Suppl., p. 162.
[47] Ibis, 1930, Suppl., p. 267.

This is the largest race of the species and is a dark, heavily marked form with a perennial plumage of the "winter" type.

I have examined a large series of this race, of *ukamba*, *heterophrys*, *fischeri*, *bodessa*, and *simplex*, and find the characters and distributional data given by Lynes to be wholly correct.

CISTICOLA CHINIANA UKAMBA Lynes

Cisticola chiniana ukamba Lynes, Ibis, 1930, Suppl., p. 267: Masongoleni, Ukamba Province, Kenya Colony.

Specimens collected:

2 males, 2 females, Tharaka district, Kenya Colony, August 13, 1912.
1 male, 1 female, Tana River, Camp No. 3, Kenya Colony, August 16–17, 1912.
1 female, Tana River below Camp No. 4, Kenya Colony, August 17, 1912.
1 female, Thika River, 20 miles above mouth, Kenya Colony, August 27, 1912.
2 males, Athi Station, Uganda Railway, Kenya Colony, September 1, 1912.

This form differs from *humilis* in being lighter, more buffy, less grayish above, and smaller in size. It inhabits the semihigh country of Kenya Colony from the Taveta-Teita country north through the Masai area and Ukambani to Embu and the Tharaka district.

Measurements of the present series are given in table 39.

The first male bird listed and the two females from the Tharaka district are in molting condition. Lynes[48] writes that "August, September and October are the months during which the majority seem to moult."

The birds from the Thika and Athi Rivers are slightly duskier, more grayish above than those from the Tharaka and Tana areas and may be slightly intermediate between this race and *humilis*. Birds from Kikuyu and Nairobi are of this intermediate nature.

Table 39.—*Measurements of 10 specimens of* Cisticola chiniana ukamba *from Kenya Colony*

Locality	Sex	Wing	Tail	Culmen from base
		Mm	*Mm*	*Mm*
Tharaka district	Male	59.0	50.0	16.0
Do	do	64.0	58.0	16.0
Tana River	do	63.0	56.0	16.5
Athi Station	do	61.0	55.0	15.0
Do	do	66.0	59.5	16.0
Tharaka district	Female		45.0	14.0
Do	do		48.0	14.0
Tana River	do	54.0	50.0	14.5
Do	do	52.0	50.0	14.0
Thika River	do	52.0	49.0	15.0

[48] Ibis, 1930, Suppl., p. 268.

Lynes writes that this form is abundant along the line of the Uganda Railway from Sultan Hamid to Makindu. The breeding seasons are as follows: Principal breeding season during the main rains, April to July; secondary breeding season during the lesser rains, November and December, "but not entirely confined to those periods."

CISTICOLA CHINIANA BODESSA Mearns

Cisticola subruficapilla bodessa Mearns, Smithsonian Misc. Coll., vol. 61, no. 11, p. 2, 1913: Bodessa, southern Ethiopia.

Specimens collected:

1 male, 1 female, 1 unsexed, Hawash River, Ethiopia, February 5–12, 1912.
1 male, northeast Lake Abaya, Ethiopia, March 17, 1912.
1 male, 1 female, Gidabo River, Ethiopia, March 17, 1912.
1 male, White Lake Abaya, Ethiopia, March 20, 1912.
1 male, Lake Abaya, southeast, Ethiopia, March 21, 1912.
1 male, 1 female, Black Lake Abaya, Ethiopia, March 23–24, 1912.
33 males, 8 females, Gato River near Gardula, Ethiopia, March 27–May 11, 1912.
1 male, Bodessa-Tertale, Ethiopia, April 9, 1912.
2 males, southeast Lake Stefanie, Ethiopia, April 30–May 11, 1912.
7 males, 2 females, Bodessa, Ethiopia, May 22–27, 1912.
1 male, Sagon River, Ethiopia, June 3, 1912.

Soft parts: Adult male—iris light reddish brown; bill brownish black, plumbeous on the basal half of the mandible; feet brownish flesh color; claws dark brown; inside of mouth black. In the adult female the soft parts are similar, except that the inside of the mouth is yellowish.

Two of the Bodessa males are juvenals with yellowish throats and underparts generally.

The male from White Lake Abaya is the type of *Cisticola subruficapilla fricki* Mearns, which is really the winter plumage of *bodessa;* one of the adult males from Bodessa is the type of *bodessa.*

Lynes[49] gives the size characters of *bodessa* to be: Wing, males, 65–71; females, 55–59; tail, summer, 52–56, winter, 55–61, perennial, 53–59 (all males). The present series indicates that the lower limits of variation are too high in Lynes's figures. The dimensions of the adult birds collected by the Childs Frick expedition are shown in table 40.

The plumages of the present series uphold Lynes's conclusions that both the seasonal and the perennial modes of dress occur together, at least in southwestern Ethiopia. In the Hawash Valley the seasonal mode appears to be the usual one, while in southern Shoa (Lake Abaya to the Kenyan border) the perennial mode seems to be the commoner one. A few of the birds taken in April and May

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[49] Ibis, 1930, Suppl., p. 270.

Table 40.—*Measurements of 66 specimens of* Cisticola chiniana bodessa *from Ethiopia*

Locality	Males			Females		
	Wing	Tail	Culmen from base	Wing	Tail	Culmen from base
	Mm	*Mm*	*Mm*	*Mm*	*Mm*	*Mm*
Hawash River	71.0	64.0	16.0	57.0	51.0	--------
Do	67.0	62.5	16.5	--------	--------	--------
Northeast of Lake Abaya	67.0	60.0	16.0	--------	--------	--------
Gidabo River	62.0	53.0	15.5	55.0	50.0	14.0
White Lake Abaya	64.0	59.0	16.0	--------	--------	--------
Southeast of Lake Abaya	65.5	55.0	16.0	--------	--------	--------
Black Lake Abaya	68.0	61.5	16.0	54.0	50.0	15.0
Gardula	71.0	53.0	16.0	52.0	48.5	14.0
Do	65.0	56.0	15.5	--------	--------	--------
Do	64.0	60.0	15.0	--------	--------	--------
Gato River near Gardula	66.0	63.0	16.0	52.0	48.0	14.0
Do	66.0	55.0	15.0	51.0	47.0	14.5
Do	66.0	56.0	15.0	54.0	49.0	14.0
Do	66.0	60.0	15.5	55.0	52.0	14.0
Do	70.0	59.0	15.5	54.0	48.5	14.5
Do	63.0	56.0	15.0	51.0	45.0	14.0
Do	68.0	61.0	15.0	53.5	51.0	15.0
Do	66.0	59.0	16.5	57.0	55.0	14.0
Do	68.0	58.0	16.0	--------	--------	--------
Do	68.0	58.0	15.0	--------	--------	--------
Do	68.0	57.0	15.5	--------	--------	--------
Do	67.0	59.0	15.5	--------	--------	--------
Do	69.0	--------	15.0	--------	--------	--------
Do	67.0	60.0	--------	--------	--------	--------
Do	65.0	51.0	15.0	--------	--------	--------
Do	66.0	60.0	--------	--------	--------	--------
Do	67.0	62.0	15.0	--------	--------	--------
Do	--------	58.0	16.0	--------	--------	--------
Do	67.5	61.0	15.5	--------	--------	--------
Do	65.0	62.0	16.0	--------	--------	--------
Do	67.0	65.0	15.0	--------	--------	--------
Do	66.5	60.0	16.0	--------	--------	--------
Do	66.0	60.0	16.0	--------	--------	--------
Do	66.0	59.5	16.0	--------	--------	--------
Do	65.0	55.0	16.0	--------	--------	--------
Do	65.0	58.0	16.0	--------	--------	--------
Do	68.5	60.5	16.0	--------	--------	--------
Do	68.0	--------	16.0	--------	--------	--------
Do	68.0	56.0	15.5	--------	--------	--------
Do	68.0	59.0	16.0	--------	--------	--------
Do	65.0	58.0	15.5	--------	--------	--------
Do	67.0	57.5	16.0	--------	--------	--------
Do	66.5	60.0	16.0	--------	--------	--------
Do	60.0	57.0	15.0	--------	--------	--------
Bodessa	61.0	57.0	15.0	50.0	42.0	--------
Do	68.5	56.0	15.0	53.0	45.0	14.0
Do	66.0	61.5	15.0	--------	--------	--------
Do	66.0	57.0	15.5	--------	--------	--------
Do	64.0	58.5	15.0	--------	--------	--------
Sagon River	65.0	55.5	16.0	--------	--------	--------
Bodessa-Tertale	64.0	55.0	16.0	--------	--------	--------
Lake Stefanie	65.0	51.0	16.0	--------	--------	--------

are in a molting condition and are molting into a new plumage similar to the old one.

This bird occurs from the Kenyan–Ethiopian boundary in Shoa and Arussi-Gallaland north across the Hawash Basin to the edge of the high Ethiopian Plateau. It does not inhabit the low plains of Abyssinian Somaliland or of Jubaland. It gets up to about 5,500 feet, but not higher. Lynes writes that there are two breeding seasons in southwestern Ethiopia—the main one from May to September, and a shorter one during January and February—but in the Hawash Valley there is only one breeding season—from May to September.

CISTICOLA HUNTERI PRINIOIDES Neumann

Cisticola prinioides Neumann, Journ. für Orn., 1900, p. 304: Mau, Kenya Colony.

Specimens collected: 17 males, 15 females, Escarpment, Kenya Colony, September 4–10, 1912.

Lynes[60] has summed up the geographical variations of this species so well that there is nothing new to add. The present large series from Escarpment substantiates his action in synonymizing *wambuguensis* and *kilimensis* with *prinioides.* I have seen the types of both of these names.

This race occurs in the highlands of Kenya Colony, including Mount Kenya but not Mount Elgon, the lower parts of Mount Kilimanjaro (below the forest belt), and all of Mount Meru. On the summit of Mount Kenya the birds become more uniformly colored above, approaching the Elgon race *masaba.* Curiously enough, on the higher reaches of Mount Kilimanjaro a darker, more heavily-streaked-backed form, typical *hunteri*, is found.

The measurements of the present series agree with the figures given by Lynes. Most of the specimens are in fairly fresh plumage; a few are considerably worn; none show molting activity.

The breeding season appears to be chiefly during the rains.

This bird appears to be very numerous where it occurs; the mere fact that Mearns was able to collect 32 specimens in a few days of general collecting indicates the abundance of the species.

CISTICOLA GALACTOTES LUGUBRIS (Rüppell)

Sylvia (*Cisticola*) *lugubris* Rüppell, Neue Wirbelthiere. zu der Fauna Abyssinien gehörig, etc., Vögel, p. 111, 1840: Gondar, Ethiopia.

Specimens collected:

1 male, Adis Abeba, Ethiopia, December 30, 1911.
3 males, Arussi Plateau, 9,000 feet, Ethiopia, February 24–28, 1912.

In the regions traversed by the Childs Frick expedition, three races of the rufous grass warbler occur, as follows:

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[60] Ibis, 1930, Suppl., pp. 337–338.

1. *C. g. lugubris:* Ethiopia, from Tigre, Amhara, and Simien Provinces in the north to Arussiland and Shoa in the south.

2. *C. g. nyansae:* The interior of Kenya Colony, Uganda, and the northeastern Belgian Congo; east as far as the Athi River. (Sclater[51] gives Naivasha as the eastern limit, but this is erroneous.)

3. *C. g. haematocephala:* Coastal South Somaliland and Kenya Colony to the northeastern part of Tanganyika Territory.

These three are readily identified by the following characters: The plumage is seasonal only in *lugubris; lugubris* and *nyansae* are large (wings—males, 60–66 mm), while *haematocephala* is small (wings —males, 55–59 mm); the last-named race is devoid of bright contrasting colors so characteristic of the first two. The tail mirrors are large in the summer plumage of *lugubris* and are absent in *nyansae.*

The four specimens of *lugubris* obtained by the expedition are all in winter plumage; a male taken on February 28 is beginning to show signs of molt; the others are not. It may well be that the bird taken at Adis Abeba and one of those from Arussi Plateau may be females, as they are rather small, with tails 57 mm in length; the other two Arussi birds have tails measuring 60 and 62 mm, respectively.

According to Lynes,[52] this bird is resident and common throughout its range and breeds from June to the end of October in northern Ethiopia and from about May to September in Shoa and southern Ethiopia generally. The altitudinal range of the species appears to be from 6,500 to 11,200 feet.

CISTICOLA GALACTOTES NYANSAE Neumann

Cisticola lugubris nyansae NEUMANN, Orn. Monatsb., vol. 13, p. 78, 1905: Sesse Island, Lake Victoria.

SPECIMENS COLLECTED: 1 male, 1 female, Athi Station, Uganda Railway, Kenya Colony, September 1, 1912.

The range and characters of this form have been given under the preceding race.

Both these specimens are in new, freshly molted plumage.

The female appears to be subadult, as it has the underparts noticeably suffused with yellowish. It is also smaller than the male, and a little duller colored above.

This bird prefers wet or damp places but occasionally occurs in dry areas removed from any water. The breeding season coincides generally with the rainy periods, and the majority of adults molt during August, September, and October.

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[51] Systema avium Æthiopicarum, pt. 2, p. 559, 1930.

[52] Ibis, 1930, Suppl., p. 387.

CISTICOLA ROBUSTA ROBUSTA (Rüppell)

Drymoica robusta Rüppell, Systematische Uebersicht der Vögel Nordost-Afrika's, p. 35, 1845: Shoa.

Specimens collected: 1 male, 2 females, Adis Abeba, Ethiopia, January 9–10, 1912.

These specimens are in fresh winter plumage, having the top of the head with much black and the nape almost pure rufous.

The male has a wing length of 76 mm, tail 59 mm; the females—wing, 64, 65; tail, 52, 53 mm. One of the females shows signs of molt in the tail.

The stout grass warbler (nominate form) occurs in Ethiopia from Simien, Gojam, and Amhara Provinces south to Shoa, but not to the drainage basin of the Omo River, where it is replaced by another, darker, more richly colored race, *omo*. In the highlands of central Kenya Colony, a smaller race, *ambigua*, is found.

According to Lynes,[53] this bird is resident and common, although somewhat local, throughout its range. Erlanger[54] found nests with eggs in April and May at Irna and Cunni.

CISTICOLA NATALENSIS INEXPECTATA Neumann

Cisticola natalensis inexpectata Neumann, Journ. für Orn., 1906, p. 268: Lake Abassi, South Ethiopia.

Specimens collected:

1 male, Lake Abaya, Ethiopia, March 21, 1912.
2 males, Turturo, Ethiopia, June 16, 1912.
4 males, 1 female, Anole, Ethiopia, June 17, 1912.

Soft parts: Male—iris brownish yellow; bill and inside of mouth entirely black; feet pale brown, claws darker brown; of another male (from Lake Abaya) Mearns noted iris light grayish brown, bill brownish black above, grayish flesh-color below; feet and claws pale brown. Female—iris brownish yellow; bill blackish above, flesh-color on sides and below; inside of mouth yellow; feet and claws flesh-color.

The male from Lake Abaya is the type of *Cisticola robusta abaya* Mearns. It is in winter plumage, commencing to molt into summer dress. All the other specimens are in summer plumage and are more grayish, less tawny-buffy above than the Lake Abaya bird. The female from Anole is beginning to molt into winter plumage on the upper back; the others are in worn plumage.

There are three races of the striped grass warbler in the general region covered by the present report. One of these, *argentea*, is confined to southern Somaliland and is but little known. The other two, *inexpectata* and *kapitensis*, were both collected by the Childs

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[53] Ibis, 1930, Suppl., p. 420.

[54] Journ. für Orn., 1905, p. 720.

Frick expedition. The present subspecies has a seasonal mode of plumage, while *kapitensis* has the perennial type. The latter is also smaller in size, wings (males) 67 to 71 mm as opposed to 70 to 78 mm in *inexpectata.*

The present race occurs from southern Eritrea to central Ethiopia and the western half of southern Ethiopia, east to longitude 40° E., but not beyond. It is resident and fairly common in the southern part of its range and, according to Lynes,[55] is more local farther north. Its altitudinal range appears to be quite limited, 5,000 to 8,000 feet.

The males listed above have wings measuring 70 to 76 mm in length; tails, 55 to 61 mm. These figures agree with those given by Lynes.

The breeding season is said to be from June to October in northern Ethiopia and from May to September in the southern part of that country.

CISTICOLA NATALENSIS KAPITENSIS Mearns

Cisticola strangei kapitensis Mearns, Smithsonian Misc. Coll., vol. 56, no. 25, p. 4, 1911: Potha, Kapiti Plains, Kenya Colony.

Specimens collected:

1 male (=female), Guaso Mara River, Kenya Colony, August 9, 1912.
1 male, 1 female, Tana River, Camp No. 5, Kenya Colony, August 19, 1912.
3 males, Thika River, 20 miles above mouth, Kenya Colony, August 27, 1912.
1 female, Bowlder Hill, Thika River, Kenya Colony, August 28, 1912.

The male from the Tana River is the type of *Cisticola robusta tana* Mearns.

This race occurs in central Kenya Colony between the altitudinal limits of 3,000 and 5,000 feet. Lynes [56] writes that it has a rather "restricted range consisting more or less of the western parts of the Machakos and Kitui Districts, the Fort Hall, Embu, Nyeri and Meru Districts, and the adjacent corner of the Northern Frontier Province." It would appear from this that the present specimens are all from the eastern part of the range of *kapitensis.*

All the present specimens are in the buff-striped nonbreeding plumage. Lynes refers to adults "in the exceptional *buff-striped nonbreeding* dress," which would make it appear that the majority of these birds never assumed such a plumage but had merely the perennial dress. It is somewhat surprising, therefore, to find that all seven of the birds collected by Mearns should be of this type. It seems that there must be considerable local variation in molt, as Lynes definitely says that "some individuals—according to the present material, a very small proportion—revert to adult Winter dress after breeding, or in other words have the seasonal *mode* of dress * * *.

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[55] Ibis, 1930, Suppl., p. 447.
[56] Ibis, 1930, Suppl., p. 452.

The few adult specimens in the collections in Winter (off-season) dress were obtained in the months of August and October, that is, *not* during what is the principal breeding season for Cisticolae in Kenya Colony."

The males have wings of from 69 to 72 mm in length; tails, from 53 to 56 mm. Lynes gives tail measurements of only 45 to 51 mm for summer (or perennial) plumages and 58 mm for a winter male.

The breeding season appears to be during the rains, but it is not too definitely known.

CISTICOLA BRACHYPTERA KATONAE Madarász

Cisticola katonae Madarász, Ann. Mus. Hungar., 1904, p. 204: Boma Gombe, near Moshi, Kilimanjaro district, Tanganyika Territory.

Specimens collected:

2 males, Tharaka district, Kenya Colony, August 12, 1912.
1 male, 1 female, Tana River, Kenya Colony, August 17, 1912.
1 male, Thika River, 20 miles above the mouth, Kenya Colony, August 27, 1912.
1 female, between Thika and Athi Rivers, Kenya Colony, August 29, 1912.
1 female, Indian Store, south Donio Sabuk, Kenya Colony, August 30, 1912.
2 males, Athi River near Juja Farm, Kenya Colony, August 30–31, 1912.

These nine specimens, taken within one month, show considerable variation in abrasion; some are very new, others quite worn. Lynes[57] notes that "the majority of adults seem to moult during August, September, and October," a statement that fits in very nicely with the present series.

The female from Donio Sabuk appears to be immature. The dimensions of the adults are given in table 41.

Table 41.—*Measurements of eight specimens of* Cisticola brachyptera katonae *from Kenya Colony*

Locality	Sex	Wing	Tail	Culmen from base
		Mm	*Mm*	*Mm*
Tharaka district	Male	55.0	40.0	12.0
Do	do	54.0	40.5	12.0
Tana River	do	55.0	42.0	13.0
Thika River	do	53.5	42.0	12.0
Athi River	do	54.0	44.0	12.5
Do	do	55.0	40.0	12.0
Tana River	Female	47.0	40.0	12.0
Between Thika and Athi Rivers	do	48.5	42.0	12.0

This race is larger than *reichenowi* and differs from *zedlitzi* in having a perennial, not a seasonal, mode of plumage.

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[57] Ibis, 1930, Suppl., p. 479.

In the region traversed by the Frick expedition, three races of this grass warbler occur—*zedlitzi* of Eritrea and Ethiopia, the present race *katonae*, and the coastal form *reichenowi*, which ranges from northeastern Tanganyika Territory north across Kenya Colony to the Juba River, southern Somaliland.

According to Lynes, the range of *katonae* includes the interior of Kenya Colony, both the midplateau and the highlands, south to and including the base and vicinity of Mount Kilimanjaro in northern Tanganyika Territory. Investigators with material from higher altitudes than any represented in the present series should note what Lynes has to say regarding variations in this form.

Like most of the species of its genus, the present one breeds chiefly during the two rainy seasons.

CISTICOLA NANA Fischer and Reichenow

Cisticola nana Fischer and Reichenow, Journ. für Orn., 1884, p. 260: N'garuka, Arusha district, Tanganyika Territory.

Specimens collected:

8 adult males, 1 immature male, 2 adult females, 1 immature female, Bodessa, Ethiopia, May 21–27, 1912.
1 adult female, Tertale, Ethiopia, June 7, 1912.
1 immature male, 1 immature female, east of Lake Stefanie, Ethiopia, April 30, 1912.
2 adult males, Lekiundu River, Kenya Colony, August 5, 1912.
1 adult male, 1 immature male, 1 adult female, Tana River, camp 6, Kenya Colony, August 21, 1912.

Lynes[58] writes that this grass warbler has only one annual molt in adult life, "constantly in Kenya-Tanganyika, and, according to present material, also in S. Ethiopia, but irregularity there may still be suspected." The present series from southern Shoa exhibits no irregularities; the female from Tertale is in molt, but this seems to be the regular, postnuptial molt. The breeding season in southern Ethiopia, however, is in May, June, and July (possibly longer), so the expedition was not in the region during the "winter" season. The Bodessa birds are all in rather worn plumage but show no evidence of molt. Those from the Tana River are in fresh feathering.

Young birds have the upper back more reddish, more like the crown in color, than adults. I can find no difference in the color of the underparts in immature birds from Ethiopia and from Kenya Colony, thereby supporting Lynes's conclusion that the degree of ventral sulphuring is an unstable, individual variation, not correlated with geography.

The size dimensions agree with those given by Lynes.

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[58] Ibis, 1930, Suppl., p. 521.

This warbler lives in the thornbush and savannah districts from central Tanganyika Territory north through Kenya Colony to Somaliland, southern Ethiopia, and northeastern Uganda.

The breeding season in Ethiopia is probably very prolonged and indefinite, as Lynes records young birds taken in July at Sheikh Hussein, while Mearns obtained young on May 23 at Bodessa. In Kenya Colony, the nesting time appears to be chiefly, but not wholly, confined to the rainy periods.

CISTICOLA CINEREOLA CINEREOLA Salvadori

Cisticola cinereola Salvadori, Ann. Mus. Genova, vol. 26, p. 254, 1888: Farré, Hawash Valley, Ethiopia.

Specimens collected:

1 male, Sadi Malka, Ethiopia, February 3, 1912.
3 males, Hawash River, Ethiopia, February 5–6, 1912.

Lynes[59] writes that the two races of this bird, *cinereola* and *schillingsi*, differ from each other "by little or no more than the *mode* of dress; that of the northern race, the seasonal; and that of the southern, the perennial, accompanied by the intermediate Winter/Summer colour-pattern commonly associated with that *mode* of dress." This does not agree very well with the small series of both races collected by the Frick expedition. The present series shows a distinct size difference, the typical birds being larger than *schillingsi*. Furthermore, Lynes states that "Somali birds run a trifle the larger, viz. ♂ wing 64±2, and Ethiopian a trifle the smaller, viz. ♂ wing 62±2," while I find the present four males from the Hawash Valley, Ethiopia, to have wings measuring 62, 65, 68, and 70 mm, respectively! The tail measurements for winter males given by Lynes are 54 to 60 mm, which agree very well with the present specimens (53, 54, 57.5, and 60 mm, respectively). The dimensions of the present series of *schillingsi* agree with the figures given by Lynes. The difference may not be so great as the present series show, as one of the topotypes of *alleni* (=*schillingsi*) in the Museum of Comparative Zoology is said to have a wing length of 67 mm. Furthermore, van Someren[60] calls *schillingsi* "a larger * * * race of *cinereola*"; so it seems that considerable variation exists.

Two of the present four examples of *cinereola* are in a molting condition, especially in the tail; the other two are very worn but show no signs of molt.

This race occurs from British Somaliland and the Hawash Valley south to southern Shoa.

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[59] Ibis, 1930, Suppl., pp. 527–528.

[60] Nov. Zool., vol. 29, p. 211, 1922.

CISTICOLA CINEREOLA SCHILLINGSI Reichenow

Cisticola schillingsi Reichenow, *in* Schillings' Mit Blitzlicht und Büchse . . . der Thierwelt von Aequatorial-Ostafrika, Appendix, p. 556, 1905: Doinyo Erok, Kenya Colony.

Specimens collected:

1 female, Wobok, Ethiopia, June 18, 1912.
1 female, Malata, Ethiopia, June 22, 1912.
2 males, 3 females, Lekiundu River, Kenya Colony, August 5–6, 1912.

This race replaces the typical form in southern Ethiopia, Italian Somaliland, and the drier parts of Kenya Colony and of northern Tanganyika Territory.

The Malata and Wobok specimens are very much abraded; those from the Lekiundu River are in much fresher plumage. The type of *alleni* Mearns, taken in August, was a molting bird, a fact that is in keeping with the fresh plumage of the August birds in the present series.

The breeding season is not definitely known, but Lynes[61] writes that April to July are breeding months throughout its range.

MELOCICHLA MENTALIS ORIENTALIS (Sharpe)

Cisticola orientalis Sharpe, Catalogue of the birds in the British Museum, vol. 7, p. 245, 1883: Pangani River, Tanganyika Territory.

Specimens collected:

1 male, 15 miles east of Meru, Kenya Colony, August 11, 1912.
1 male, 1 female, junction of Tana and Thika Rivers, Kenya Colony, August 24–25, 1912.
1 male, 20 miles above mouth of Thika River, Kenya Colony, August 27, 1912.
1 male, Bowlder Hill, Thika River, Kenya Colony, August 28, 1912.
1 male, between Thika and Athi Rivers, Kenya Colony, August 29, 1912.
1 male, Athi River near Juja Farm, Kenya Colony, August 30, 1912.

Two races of the giant grass warbler occur in northeastern Africa—the present one and *amaurora*. Their ranges are as follows:

1. *M. m. orientalis:* From Mashonaland and Nyasaland, north through all but the westernmost parts of Tanganyika Territory, to most of the southern half of Kenya Colony, except the Kavirondo region.

2. *M. m. amaurora:* Southwestern Ethiopia and southern Anglo-Egyptian Sudan (Upper White Nile, Mongalla, etc.) to Uganda and the eastern Belgian Congo and to Kisumu, Kibigori, etc., in the Kavirondo area in southwestern Kenya Colony, intergrading with *orientalis* in the Mount Elgon region, although the majority of Elgon birds seem to be *amaurora*. Granvik[62] considers birds from Mount

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[61] Ibis, 1930, Suppl., p. 530.

[62] Journ. für Orn., 1923, Sonderheft, pp. 227–228.

Elgon *amaurora*, while van Someren[63] records *orientalis* from that mountain.

The two forms differ in color—*orientalis* is more richly colored below, with bright tawny breast, sides, flanks, thighs, and under tail coverts; the chin, throat, and middle of the abdomen white; while *amaurora* has the white areas lightly suffused with buff, and the rest of the underparts generally paler than in *orientalis*. On the upperparts *amaurora* is the darker form, being grayer, more fuscous, less rufescent, as well as darker, than *orientalis*. Van Someren seems to have made a slip of the pen in this regard as he writes that *orientalis* is "very much richer below and darker above" than *amaurora*. As a matter of fact, the former is more rufescent above and below, lighter above, than the latter form. Not infrequently, however, examples occur in the range of one that closely resemble typical examples of the other race, but on the whole the dorsal color characters hold good. That this observation is not peculiar to the material I have examined is evidenced by Granvik's notes on his four Elgon birds (*amaurora*), two of which "recall *orientalis* in the light, pale colour of the underparts, which is almost whitish in the centre. * * * The other two * * * are more uniformly yellowish brown on the lower surface." Granvik suggests that there may be sexual dimorphism, the females paler than the males. This is not borne out by the material studied in the present connection.

The males have wing lengths of 71–79; tails, 86–94; culmen from the base, 18–20; tarsus, 28–29.5 mm. The female—wing, 74; tail, 92.5; culmen, 18; tarsus, 29.5 mm. One of the males (taken August 28) was in molt when shot.

This warbler inhabits bushy places, both swampy and scrub.

SPILOPTILA RUFIFRONS RUFIFRONS (Rüppell)

Prinia rufifrons RÜPPELL, Neue Wirbelthiere, zu der Fauna Abyssinien gehörig etc., Vögel, p. 110, pl. 41, fig. 2, 1840: Abyssinian coastlands.

SPECIMENS COLLECTED: 1 male, Sadi Malka, Ethiopia, January 29, 1912.

Sclater[64] puts this species in the genus *Apalis*, a course for which I can see no reason. It is much closer structurally to *Spiloptila clamans* than to any other African warbler. Through the courtesy of Dr. Frank M. Chapman, I have been able to compare *rufifrons* with *clamans*, and I consider them to be clearly congeneric. I am not the first to put *rufifrons* in the genus *Spiloptila;* Madarász[65] described races of this bird as *Spiloptila danakilensis* and *S. reichenowi*. Either this bird is a *Spiloptila*, or *Spiloptila* can not be maintained as a genus. The South African *Priniops* appears to be a valid genus.

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[63] Nov. Zool., vol. 29, p. 206, 1922.

[64] Systema Avium Æthiopicarum, pt. 2, pp. 527–528, 1930.

[65] Ann. Mus. Hungar., vol. 13, p. 300, 1915; and Orn. Monatsb., vol. 12, p. 179, 1904.

I have not enough material to attempt a revision of the forms of this scrub warbler and therefore adhere to the arrangement adopted by Sclater. It seems not improbable, however, that *turkana* van Someren may prove to be a valid form and not a synonym of *smithii.*

The typical race inhabits the Red Sea Province of the Sudan, south to the Danakil coastal area of Eritrea, and to the Hawash Valley of Ethiopia, and west to Darfur. *S. r. smithii* is found in British and Italian Somaliland, Jubaland, Ennia Gallaland, and the Rendile country of northern Kenya Colony, to northwestern Uganda (where the birds van Someren named *turkana* occur), intergrading in the region of Chanlers Falls on the Northern Guaso Nyiro River with the southernmost race, *rufidorsalis.* The latter occurs in the arid scrub country of Kenya Colony from the Tana River south to the Sotik, Teita, and Taveta districts and to the Litema Mountains, Tanganyika Territory. The race *smithii* differs from the nominate one in having the rufous extending back on to the occiput and in having broader white tips to the rectrices; *rufidorsalis* is more rufescent on the back than either and has the rufous on the head restricted to the anterior portion as in *rufifrons.*

Sclater considers *reichenowi* Madarász a synonym of *smithii,* but it really is the same as *rufidorsalis,* of which race it forms the southernmost record. Sclater assumes that the Litema Mountains are the Settima Mountains of Kenya Colony, but Reichenow[66] shows them to be a range south of Kilimanjaro.

Erlanger[67] found this bird quite abundantly in northern Somaliland, where he found it breeding. The local form there is *smithii.*

In Darfur, Lynes[68] found the typical race only in the "low sterile hills, sparsely grown with acacia-scrub and poor grass * * * in fact, much the same type of habitat as *Spiloptila,* but in the hills." (He puts the bird in the genus *Apalis.*) It appears to breed there in summer.

SPILOPTILA RUFIFRONS SMITHII (Sharpe)

Dryodromas smithii Sharpe, Bull. Brit. Orn. Club, vol. 4, p. 29, 1895: Shebelli River.

Specimens collected:

1 female, 18 miles southwest of Hor, Kenya Colony, July 1, 1912.
8 males, 4 females, Indunumara Mountains, Kenya Colony, July 14–16, 1912.
1 male, Malele, Kenya Colony, July 27, 1912.

The characters and distribution of this form have already been discussed.

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[66] Die Vögel Afrikas, Atlas, map c, 1905.

[67] Journ. für Orn., 1905, p. 726.

[68] Ibis, 1925, p. 97.

The birds vary considerably in the length of the wing, the extremes being 39.5 and 48.5 mm in the males and 42.5 and 46 mm in the females. They are in rather worn plumage.

The breeding season in northern Somaliland is in January. Erlanger[69] found a nest with four eggs at Dadab, British Somaliland, on January 25.

Besides the specimens collected, Mearns observed this warbler as follows: Southeast of Lake Rudolf, July 11, 2 birds seen; 10 to 25 miles southeast of Lake Rudolf, July 12, 2 noted; Nyero Mountains, July 13, 24 birds; Indunumara Mountains, July 13–18, 250; Endoto Mountains, July 18–24, 550; Er-re-re, July 25, 20 birds; Le-se-dun, July 26, 20 seen; 18 miles south of Malele, July 28, 30; river 24 miles south of Malele, July 29, 25 seen; 25 miles north of Northern Guaso Nyiro River, July 30, 50; Northern Guaso Nyiro River, July 31–August 3, 60; Lekiundu River, August 4–8, 2 birds noted.

PRINIA MISTACEA MISTACEA Rüppell

Prinia mistacea Rüppell, Neue Wirbelthiere, zu der Fauna Abyssinien gehörig, etc., Vögel, p. 110, 1840: Gondar, Ethiopia.

Specimens collected:

1 female, Adis Abeba, Ethiopia, December 30, 1911.
2 males, Arussi Plateau, Ethiopia, February 20–24, 1912.
1 male, Cofali, Ethiopia, March 3, 1912.
2 males, Ethiopia, March 6, 1912.

The races of this long-tailed warbler have been reviewed several times by many investigators, such as Sclater and Mackworth-Praed, Gyldenstolpe, and Bates and van Someren, and all agree in recognizing several forms in northeastern Africa. I have examined about 50 specimens from the ranges of typical *mistacea*, *immutabilis*, *tenella*, and *graueri* and find that the subspecies are rather poorly defined. Gyldenstolpe[70] has cast some doubts on the validity of *immutabilis* van Someren. I find that *immutabilis* and *tenella* may be told apart by size characters but that the alleged color differences do not hold. The form that puzzles me the most (and which, fortunately, does not immediately concern us in this report) is *graueri*. A female from Nyanza, on the west shore of Lake Tanganyika, is geographically referable to this race, but I can not separate it otherwise from *immutabilis*. On the other hand, a male from Kabare, on the Tanganyikan-Uganda border, fits the description of *graueri* very well, as it should by virtue of its geographic origin, but it hardly differs from another from the Thika River in Kenya Colony (*immutabilis*). Still, in the absence of more adequate material from the eastern Belgian Congo, I admit *graueri* as a valid form.

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[69] Journ. für Orn., 1905, p. 726.

[70] Kongl. Svenska Vet.-Akad., Handl., 1924, pp. 151–152.

The distribution and characters of the forms more particularly pertinent to the present report are as follows:

1. *P. m. mistacea:* The nominate race occurs from the Eritrean–Ethiopian frontier south through Ethiopia to Arussi-Gallaland, southern Shoa, west through Kassala, Sennar, Upper White Nile and Mongalla Provinces of the Anglo-Egyptian Sudan, through Darfur to northern Cameroon, the Lake Chad area, Northern Nigeria, and the northern Gold Coast (in the Upper Guinean savannah belt).

2. *P. m. immutabilis:* From the interior of northern Tanganyika Territory and from the Ukamba region in Kenya Colony, west through the highlands of the latter country, across Uganda, and, according to Sclater,[71] to the southern part of Cameroon. Van Someren[72] merely states that this bird ranges west "to Elgon and Uganda." This race differs from the typical one in that it has no seasonal plumage dimorphism (which is conspicuously present in *mistacea*), and has the interscapulars and back slightly more olivaceous and the rump a little more rufescent than in *mistacea.* Recent authors have not commented on any dimensional differences between these birds and examples of *mistacea*, but I find that typical specimens of the latter, from Ethiopia, average a little larger than a series of *immutabilis*, but a specimen of *mistacea* from the White Nile is smaller than those from Ethiopia. I have not the material to investigate this point but wonder whether *mistacea* may not be a composite of two forms. It must be remembered, however, that together with the larger birds there occur smaller ones (the so-called *murina* Heuglin, which so puzzled Neumann when working over his Abyssinian collections).

3. *P. m. tenella:* The coastal districts of eastern Africa from eastern Mozambique (Lumbo and Lower Zambesi Valley) north through eastern Tanganyika Territory (inland to Morogoro, Kilosa, the Uluguru and Usambara Ranges, and Mount Kilimanjaro) and eastern Kenya Colony (inland to Taveta and Changamwe) north to the Juba River and extreme southern Italian Somaliland. This form is somewhat smaller than *immutabilis* (wings, male 45.5–50, female 45–47 mm, as against male 49–53, female 47–52 mm in *immutabilis*). I do not find the color characters to be of any reliable constancy.

4. *P. m. graueri:* Extreme southwestern Uganda and adjacent portions of Tanganyika Territory, Urundi, Ruanda, and the eastern Ituri district of the Belgian Congo south to the Katanga, Northern Rhodesia, and the northern parts of Angola. This race is said to be easily distinguished by having dark cinnamon-rufous edges to the

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[71] Systema avium Æthiopicarum, pt. 2, p. 570, 1930.

[72] Nov. Zool., vol. 29, p. 218, 1922.

remiges at all seasons. Hartert[73] says it also has a stronger bill than *immutabilis*, but this is refuted by Gyldenstolpe's material and by the few birds of this race that I have seen. I must confess that I do not see anything distinctive about the remiges of birds geographically referable to *graueri*.

The present examples of the typical race show a great deal of variation in color, not accounted for by seasonal difference. The female is paler above than any of the males; it has the top of the head and the upper back uniform buffy-brown, while the males are darker, olive-brown with obscure fuscous streaks on the crown. This is not a constant sexual difference, however, as Zedlitz[74] has shown.

The dimensions of the present six specimens are given in table 42.

This species, like some forms of the allied genus *Cisticola*, presents the curious phenomenon of having two seasonal plumages in the extreme northern and southern parts of its range and not in the intervening tropical area. The present race, and the South African forms *affinis* and *pondoensis*, have distinctly different breeding (summer) and nonbreeding (winter) plumages. In *mistacea* the breeding plumage is more grayish than the more rufescent nonbreeding plumage, and the tail in the former plumage averages only 50 to 55 mm, while in winter birds it measures about 60 to 70 mm in length, according to Sclater and Mackworth-Praed.[75] It would appear from this that the present birds are all in winter plumage. They are considerably abraded and probably would have molted into breeding plumage in April or May.

TABLE 42.—*Measurements of six specimens of* Prinia mistacea mistacea *from Ethiopia*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Arussi Plateau	Male	57.0	66.0	15.0	20.5
Do	do	58.0	62.0	14.0	21.0
Cofali	do	51.0	69.0	14.0	20.0
?	do	55.0	61.5	14.0	20.0
?	do	54.0	65.0	15.0	21.0
Adis Abeba	Female	49.5	65.0	13.5	22.0

Gyldenstolpe collected birds with shorter tails in gray summer plumage in Mongalla Province of the Sudan in August. In Darfur, Lynes[76] found that the birds began "to assume the grey or dark short-tailed breeding-dress in June, by moult of body-, head-, and tail-feathers; August, nest-building; September, eggs; October young abroad; November, complete moult of adults into the long-tailed rufous dress of winter."

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[73] Nov. Zool., vol. 27, pp. 457–458, 1920.

[74] Journ. für Orn., 1911, p. 66.

[75] Ibis, 1918, p. 677.

[76] Ibis, 1925, p. 101.

Von Heuglin[77] found this species in central and southern Ethiopia, in Sennar, on the Sobat and the White Nile, and particularly abundant at Lake Tsana and at Gondar. He found it up to altitudes of as much as 10,000 feet above the sea.

Besides the specimens collected, Mearns noted this bird as follows: Several seen along the Upper Hawash River during January and February; Aletta, March 7–13, 20 birds; Loco, March 13–15, 20 noted; Gidabo River, March 15–17, 30; Abaya Lakes, March 18–26, 200; between the Abaya Lakes and Gardula, March 26–29, 20 birds seen.

PRINIA MISTACEA IMMUTABILIS van Someren

Prinia mistacea immutabilis VAN SOMEREN, Bull. Brit. Orn. Club, vol. 40, p. 93, 1920: Lake Nakuru, Kenya Colony.

SPECIMENS COLLECTED:

1 male, Meru Forest, Equator, Kenya Colony, August 10, 1912.
1 female, Tharaka District, Kenya Colony, August 12, 1912.
1 female, junction of Tana and Thika Rivers, Kenya Colony, August 26, 1912.
1 male, 20 miles up the Thika River, Kenya Colony, August 27, 1912.
1 male, between the Thika and Athi Rivers, Kenya Colony, August 29, 1912.
1 male, Athi Station, Uganda Railway, Kenya Colony, September 1, 1912.

The characters and distribution of this race have already been discussed and need not be repeated here.

Three of the present specimens were molting the rectrices and remiges when collected; two of the others are in fresh plumage, while the remaining one is still in abraded feathering. The males have the following dimensions: Wing, 51, 49, 52.5, 49; tail, 59, 63.5, 65.5, ——; culmen, 15, 14.5, 14, 14.5; tarsus 22.5, 22, 21, 20 mm, respectively. The females: Wing, 51, 47; tail, 62, 53; culmen, 14, 13.5; tarsus, 21, 19 mm, respectively.

Lönnberg[78] found this bird common in herbaceous thickets at Kutu, Kagio, Fort Hall, Meru, etc., and obtained a male with somewhat enlarged gonads on March 30 at Kagio. Granvik[79] writes that it is one "of the most common birds occurring on the fringes of the forest, in the bush areas and acacia-country. * * * On Elgon the bird was common right up to about 8,000 feet." He found it nesting in June and in July.

The following observational records of this bird are taken from Mearns's field notebook: Tana River at mouth of Thika River,

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[77] Ornithologie Nordost-Afrika's, etc., vol. 1, pp. 239–240, 1869.
[78] Kongl. Svenska Vet.-Akad. Handl., vol. 47, no. 5, p. 123, 1911.
[79] Journ. für Orn., 1923, Sonderheft, p. 241.

August 23–26, 30 seen; east of Ithanga Hills, August 26, 10 birds; Bowlder Hill, 20 miles above the mouth of the Thika River, August 27, 20 noted; Thika River, west of Ithanga Hills, August 28, 10 birds; between the Thika and Athi Rivers, August 29, 30 seen; Athi River near Juja Farm, August 30–31, 75; Athi River Station, Uganda Railway, September 1, 20 birds noted.

PRINIA SOMALICA ERLANGERI Reichenow

Prinia somalica erlangeri Reichenow, Orn. Monatsb., vol. 13, p. 24, 1905: Gurra country, southern Somaliland.

Specimens collected:

1 female, 18 miles southwest of Hor, Kenya Colony, July 1, 1912.
3 females, Nyero Mountains, Indunumara Mountains, Kenya Colony, July 13–17, 1912.
1 female, Marsabit Road, 25 miles north of Northern Guaso Nyiro River, Kenya Colony, July 30, 1912.

This pale-colored longtail occurs across northern Kenya Colony from southern Italian Somaliland on the east to southwestern Ethiopia and to Turkanaland, northeastern Uganda, on the west, according to Sclater,[80] who gives merely the above region as its range, but van Someren [81] obtained specimens at Tsavo and Campi-ya-bibi. He says that he—

> * * * was surprised to find this bird in the Serengeti Plains east of Kilimanjaro and then again in the region of the Turkwell River, west of Lake Rudolf. I can see no difference between these birds, nor * * * any character for separating them from *P. s. erlangeri* from South Somaliland (N'garelewln). * * * The range would be from East Kilimanjaro Plains to South Ukambani, north to the Guasso N'yiro and Baringo district, also to Lake Rudolf and Turkana.

The typical race, which I have not seen, is said to be paler above. It occurs in the lowlands of northern Somaliland from the Berbera Plain to the Zeila–Djeldessa region.

The present specimens are all in worn plumage; one, taken on July 1, was molting the rectrices when shot. Their dimensions are as follows: Wing, 47, 46, 46, 47, 43.5; tail, 54, 58, 51.5, 60, 56; culmen, 11.5, 11.5, 10.5, 12, 10.5; tarsus, 18.5, 19, 18.5, 19, 18 mm. (The specimens are in the same order as in the above list.)

Sharpe [82] puts this species in the genus *Burnesia*. Reichenow, Sclater, and others do not recognize *Burnesia* as a valid genus. I find that *Prinia* is a rather heterogeneous group, but inasmuch as there are species that fill practically all the stages from the very slender-billed *lepida* (type of *Burnesia*) to *familiaris* (type of *Prinia*) and to *bairdii* (type of *Herpystera*), it is difficult to separate them. They ought to be kept as subgenera at least, in which case the present species would belong in the subgenus *Burnesia.*

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[80] Systema avium Æthiopicarum, pt. 2, pp. 570–571, 1930.

[81] Nov. Zool., vol. 29, p. 219, 1922.

[82] Hand-list of the genera and species of birds, vol. 4, p. 241, 1903.

This warbler lives in the grassy acacia savannahs and is very abundant in southern Somaliland. According to von Erlanger,[83] the breeding season is in April and May. He found a nest with four eggs at Haro-Ali, in Gurraland, on April 7, and another, also with four eggs, at Damaso, Garre-Lewin, on May 14.

Family MUSCICAPIDAE, Old World Flycatchers

MUSCICAPA STRIATA STRIATA (Pallas)

Motacilla striata Pallas, *in* Vroeg, Catalogus adumbratiunculae, p. 3, 1764: Holland.

Specimens collected: 2 females, Gato River near Gardula, Ethiopia, April 3–May 2, 1912.

The European spotted flycatcher is a common and regular migrant in northeastern Africa. In Kenya Colony many remain for the winter, but the bulk pass through to regions farther south.

Both specimens are in new, fresh plumage. This bird has but one molt a year, which takes place in the winter quarters, from November to March.

Like many European migrants the present species is more numerous on either side of Ethiopia than in that country, owing to the natural migratory highways afforded by the Nile Valley and the Red Sea and to the high altitude of northern and central Ethiopia.

Meinertzhagen[84] found that the birds arrived in southern Kenya Colony late in September and left by the end of March. Van Someren and others have found it to be widely distributed in that country.

ALSEONAX MINIMUS DJAMDJAMENSIS Neumann

Alseonax murinus djamdjamensis Neumann, Journ. für Orn., 1905, p. 206: Gerbidjo, Djamdjam, Ethiopia.

Specimens collected:

3 males, 2 females, Arussi Plateau, 9,000 feet, Ethiopia, February 21–24, 1912.
2 females, Cofali, Ethiopia, March 2–3, 1912.
1 male, Malke, Ethiopia, March 3, 1912.
1 male, 2 females, Aletta, Sidamo, Ethiopia, March 7–9, 1912.
1 male, Loco, Sidamo, Ethiopia, March 13, 1912.

In identifying the present series I have studied Grote's revision[85] and have examined 88 specimens representing 10 forms. Inasmuch as my conclusions do not entirely agree with Grote's, the following statement may be of interest: I recognize two species (considered as one by Grote)—*adusta* with four geographic forms (*adusta*, *subadusta*, *angolensis*, and *fülleborni*) and *minimus* with twelve races (*minimus*, *pumilus*, *djamdjamensis*, *neumanniana*, *murinus*, *subtilis*, *roehli*, *albiventris*, *obscurus*, *okuensis*, *kumboensis*, and *grotei*). The last five, all from various parts of Cameroon, I merely accept as valid in the absence of any material of four of them (and only one specimen of *kumboensis* available). Though it is true that the *adusta* group and the *minimus* group are closely related, the former are grayish birds, the latter distinctly brownish birds. Furthermore, the two overlap in the Usambara Mountains, where *A. adusta fülleborni* and *A. minimus roehli* occur together. In other words, the main differences between my results and those of Grote are the division of the whole group into two specific aggregates, the recognition of *fülleborni* as a valid form (treated as a synonym of *subadusta* by Grote), and the inclusion of four forms (*roehli*, *neumanniana*, *okuensis*, and *grotei*) described since his review was published. The form *poensis* Reichenow[86] I have not seen, and Grote does not mention or dispose of it in his paper. It may be a thirteenth race of *A. minimus*. Boyd Alexander[87] recorded *obscurus* from Fernando Po and had birds from Mount Cameroon to compare them with at the time.

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[83] Journ. für Orn., 1905, pp. 724–725.
[84] Ibis, 1921, p. 671.
[85] Orn. Monatsb., vol. 28, pp. 112–115, 1920.

In northeastern and tropical eastern Africa there are five races of this bird, as follows:

1. *A. minimus minimus:* Bogosland, northern and central Ethiopia (south to Antotto and Ankober).
2. *A. minimus djamdjamensis:* South Shoa, the Djamdjam country, east to the Arussi Plateau.
3. *A. minimus murinus:* From Mount Kilimanjaro and Mount Mero, in Tanganyika Territory, north through Kenya Colony to at least as far as Mount Kenya and Mount Uraguess and west to Mount Elgon, where it intergrades with *pumilus*.
4. *A. minimus pumilus:* The Bukoba-Masaka district of Uganda north and east to Lake Albert and the eastern part of the Budu district. In western Uganda *pumilus* intergrades with *subtilis*.
5. *A. minimus roehli:* The Usambara Mountains, Tanganyika Territory.
6. *A. minimus neumanniana:* The Omo drainage basin, southwest Ethiopia.

As is usually the case with subspecies based on rather slight (and somewhat variable) characters, it is not always possible to identify a specimen by means of a key with no named comparative material available. However, the following key should help in the majority of cases:

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[86] Orn. Monatsb., 1912, p. 46: Fernando Po.

[87] Ibis, 1903, p. 383.

KEY TO THE FORMS OF ALSEONAX MINIMUS IN EASTERN AND NORTHEASTERN AFRICA

a^1. Bill not more than 5 mm wide at base ..... minimus
a^2. Bill more than 5 mm wide at base.
  b^1. Upperparts with a yellowish tone ..... djamdjamensis
  b^2. Upperparts with no yellowish tone.
    c^1. Crown darker than the back ..... neumanniana
    c^2. Crown not darker than the back.
      d^1. Underparts nearly as dark as the back ..... roehli
      d^2. Underparts much lighter than the back.
        e^1. Wings less than 60 mm in length ..... pumilus
        e^2. Wings more than 62 mm in length ..... murinus

TABLE 43.—*Measurements of 12 specimens of* Alseonax minimus djamdjamensis *from Ethiopia*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Arussi Plateau	Male	68.0	53.0	10.0	15.0
Do	do	66.0	48.0	11.0	13.5
Do	do	65.5	51.5	11.0	15.0
Malke	do	65.0	48.0	11.0	14.0
Aletta	do	63.0	45.0	11.5	15.0
Loco	do	64.0	46.0	10.0	14.0
Arussi Plateau	Female	63.0	47.5	11.0	14.0
Do	do	64.5	52.0	11.0	14.5
Cofali	do	62.0	46.5	10.0	14.0
Do	do	60.0	50.0	11.0	13.5
Aletta	do	62.0	46.0	11.0	14.5
Do	do	62.5	47.0	11.0	13.5

Besides the differences indicated in the key, on the whole *pumilus* is browner, less grayish above, than *murinus*, but the latter varies considerably in this regard. I have seen no material of *roehli* and merely assume the characters given by Grote[88] are correct.

The present series of *djamdjamensis* indicates that the birds of the high plateau of Arussiland are slightly larger than those of the lower Sidamo country north of the Abaya Lakes. The measurements are given in table 43.

Two of the Aletta and one of the Cofali birds approach *neumanniana* in having the top of the head noticeably darker than the rest of the upperparts. Whether the two forms intergrade in the Sidamo area is an open question. For the present I prefer to consider all these specimens as *djamdjamensis*.

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[88] Orn. Monatsb., vol. 27, p. 62, 1919.

Since this account was first written van Someren [89] has described two more subspecies—*marsabit*, from the mountain of that name, and *interpositus*, from Molo. The former is smaller, more ashy brown above, and more ochraceous-brown below than *murinus*, thereby somewhat resembling *pumilis; interpositus* is like *murinus* but is less dark grayish above, more brownish, and not so grayish on the breast. I have seen no material of either.

HYPODES CINEREUS KIKUYUENSIS (van Someren)

Alseonax caerulescens kikuyuensis VAN SOMEREN, Bull. Brit. Orn. Club, vol. 41, p. 102, 1921: Kyambu, Kenya Colony.

SPECIMENS COLLECTED: 1 female, Tana River (1,200 feet), Kenya Colony, August 15, 1912.

Unfortunately, I have been able to examine so little comparative material that I can add little to what is known of this flycatcher.

Bates [90] has straightened out the nomenclature of this bird and has shown that *Hypodes* Cassin (1859) has many years' priority over *Cichlomyia* Oberholser (1905). I feel that the birds are generically distinct from *Muscicapa*, and hence Cassin's name *cinerea* is the proper specific name. If, however, the bird be left in *Muscicapa*, the name *cinerea* can not be applied, as Cassin's name dates from 1856 while P. L. S. Müller named a Madagascan bird *Muscicapa cinerea* in 1776; Gmelin did the same for a South American form in 1789 and McClelland used the name for an Indian bird in 1837.

Sclater [91] follows Bates's conclusions as to the racial forms except that he does not recognize *pondoensis* Gunning and Roberts. Unfortunately, neither of these writers makes any mention of *Muscicapa cinereola* Hartlaub and Finsch.[92] Van Someren [93] has referred birds from Teita to *cinereola* so I assume that a specimen from Taveta (Abbott collection) is of that form. It is grayer, darker both above and below, than the specimen from the Tana River. Inasmuch as it differs from the latter in precisely the manner in which *cinereola* is said to differ from *kikuyuensis*, I conclude that Mearns's bird is of the latter form, which I have not otherwise seen. It appears to constitute the northernmost record for *kikuyuensis*. Judged by the locality from which it comes, it would not be surprising if it proved to be somewhat intermediate between this race and *cinereola*. Its measurements are as follows: Wing, 74; tail, 58.5; culmen, 14.5 mm. It is an adult in fresh plumage.

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[89] Journ. East Africa and Uganda Nat. Hist. Soc., no. 37, pp. 193–194, 1931.

[90] Ibis, 1926, pp. 581–585.

[91] Systema avium Æthiopicarum, pt. 2, p. 401, 1930.

[92] Baron C. C. von der Decken's Reisen in Ost-Afrika in den Jahren 1859–1865, vol. 4, Vögel, p. 302, 1870: Usaramo, Tanganyika Territory.

[93] Nov. Zool., vol. 29, p. 96, 1922.

Erlanger[94] records this species from southern Somaliland (Chongolo, Solole, and Fanole) but does not identify his specimens beyond the species. Zedlitz[95] similarly gives no clue as to their racial identity, but it appears that these birds are probably *cinereola*, in which case the range of that race should be extended north to the lower Genale and the Bardera district, southern Italian Somaliland.

Inasmuch as my conclusions differ from those given by Sclater, I give a summary of the races and their ranges, as follows:

1. *H. c. cinereus:* Cameroon to Gaboon, east to Uganda.
2. *H. c. kikuyuensis:* The interior of Kenya Colony from the Kikuyu district north to the Tana River.
3. *H. c. cinereola:* The coastal areas of Tanganyika Territory north to the plains east of Mount Kilimanjaro, the Teita and Pare Hills, and the Taru Desert, north along the coast to southern Somaliland; south through Mozambique and Nyasaland; west through the Katanga and Northern Rhodesia to Benguella and Damaraland.
4. *H. c. caerulescens:* Natal and Zululand to Swaziland and Amatongaland, southern Mozambique.
5. *H. c. pondoensis:* Pondoland (doubtfully distinct).
6. *H. c. cinerascens:* Gold Coast.

PARISOMA PLUMBEUM PLUMBEUM (Hartlaub)

Stenostira plumbea HARTLAUB, Journ. für Orn., 1858, p. 41: Casamanze River, Senegal.

SPECIMENS COLLECTED:

1 male, Gato River near Gardula, Ethiopia, April 6, 1912.
1 male, Sagon River, Ethiopia, June 3, 1912.

Soft parts: Iris brown; bill black above and on sides, flesh-color below; feet plumbeous, claws black.

This species occurs throughout the African Continent from Senegal, the Sudan, to the White Nile and southwestern Ethiopia, south to South Africa (except the western part), exclusive of the heavy forest area of the Upper Guinea coast and of the Congo Basin. Throughout this enormous range it remains fairly constant in its size and color characters, the only geographic race described being *orientale* of Reichenow and Neumann from the Taru Desert region of Kenya Colony.[96] This race is said to differ in having the outermost pair of rectrices white for only the distal third of their length, while in the nominate form these feathers are practically wholly white. Not having seen any birds from coastal Kenya Colony, I can not decide on the merits of *orientale*, but its characters do not appear to be well marked. Thus, van Someren[97] writes that "this race is quite good, being considerably darker above and below and possessing white under tail coverts, but its range is not definitely known." He does not mention the supposedly main character, that of the outermost rectrices, and I find that birds from South Africa, West Africa, and Ethiopia have white under tail coverts, so this is not a racial character. Until *orientale* is definitely shown to be nonexistent, I shall use a trinomial for the typical form. Van Someren finds that his Ugandan birds are grayer on the breast than Senegalese specimens and suggests that a sufficient series may show them to be separable. Sclater and Mackworth-Praed[98] also state that Uganda birds are grayer above and on the breast, but Gyldenstolpe[99] finds that is not the case, with the breast at least, in the material seen by him.

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[94] Journ. für Orn., 1905, p. 683.

[95] Journ. für Orn., 1915, p. 43.

[96] Orn. Monatsb., 1895, p. 74.

The present two specimens appear to be the first records for the species in Ethiopia. Both are in very worn plumage, and have the following dimensions: Wing, 70–71; tail, 62.5–65.5; culmen from base, 13–14; tarsus, 17–18 mm.

Parisoma pulpum Friedmann[1] is very similar to *P. plumbeum* but has a much larger, more swollen bill and pale olive-green feet. At the time of description I wrote that it might prove to be the Portuguese Guinea race of *plumbeum*, but this is not so, as typical *plumbeum* has been taken in that country. It is possible that *pulpum* (the type of which is unique) may be a pathological form, but the differences are well marked.

Parisoma holospodium Bates[2] is not a *Parisoma* at all, but a race of *Muscicapa griseigularis*.

Genus BRADORNIS A. Smith

Since Ogilvie-Grant's review of the forms of this puzzling group[3] a number of races have been described, usually with insufficient clues as to their relationship and based on such fine differences that it is exceedingly difficult to determine specimens of this genus. Needless to say, divergent opinions have been published on many of the forms, so that the literature is almost as mystifying as the birds themselves. In determining the specimens collected by the Frick expedition, I have taken the opportunity of reidentifying all the material of all the species and subspecies available to me, some 70 specimens in all. In the following list I have indicated the disposition of synonyms as far as I am able to do so.

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[97] Nov. Zool., vol. 29, p. 206, 1922.

[98] Ibis, 1918, p. 705.

[99] Kongl. Svenska Vet.-Akad. Handl., 1924, p. 197.

[1] Occ. Papers Boston Soc. Nat. Hist., vol. 5, p. 219, 1926: Gunnal, Portuguese Guinea.

[2] Bull. Brit. Orn. Club, vol. 25, p. 27, 1909: Bitye, Cameroon.

[3] Ibis, 1913, pp. 632–637.

I recognize three species (in eastern Africa)—*pallidus*, *bafirawari*, and *microrhynchus*. I have not enough western material to do anything with *tessmanni*, *nigeriae*, *sylvia*, etc. The first two appear to be races (if valid) of *pallidus;* while *sylvia* is very small, and is a brownish bird.[4]

The forms of eastern Africa are:

1. *Bradornis microrhynchus:* Eritrea, Ethiopia, south Sudan, Somaliland, eastern Uganda, Kenya Colony, and Tanganyika Territory to Mozambique and Rhodesia. This is the species called *B. griseus* in Sclater's list. Four races are recognizable:

(a) *B. m. microrhynchus:* From Mozambique, Nyasaland, and Rhodesia, north through Tanganyika Territory to Kenya Colony, from Magadi Lake to Kisumu and the Uganda border, north to Nairobi, and the Athi River.

(b) *B. m. taruensis:* The semiarid thornbush country of the Taru Desert and the Serengeti Plains east of Mount Kilimanjaro, south into eastern Tanganyika Territory as far as Dodoma.

(c) *B. m. erlangeri:* Northern Kenya Colony (south to the Lekiundu River and the Thraka district and the Luazomela River) north to southern Somaliland, Turkanaland, and southern Shoa (Tertale, Bodessa, and Gidabo River).

(d) *B. m. pumilus:* Northern Somaliland, southern Sudan (White Nile), central and northern Ethiopia, and southern Eritrea.

2. *Bradornis pallidus:* Eritrea, Ethiopia, Darfur and the White Nile districts of the Anglo-Egyptian Sudan, west to Nigeria and the Gold Coast, south to South Africa. This species breaks up into six races in eastern Africa:

(a) *B. p. pallidus:* The Nile Valley from Kordofan and Sennar west to Darfur, east to Shoa and the Rendile country of Lake Rudolf, but not in southwestern Shoa.

(b) *B. p. bowdleri:* Eritrea and northern Ethiopia, south to the vicinity of Adis Abeba.

(c) *B. p. granti:* Southwestern Ethiopia, the southern part of the Upper White Nile (Mongalla, Gondokoro, etc.) to northwestern Uganda, and to Aba in the Uelle district, Belgian Congo.

(d) *B. p. subalaris:* Coastal districts of East Africa from Mombasa to the Tana River. I have no material from Kordofan with which to compare coastal birds, but Rothschild[5] states that *subalaris* Sharpe (type locality, Mombasa) is a synonym of *pallidus*, which would indicate the identity of the coastal birds with topotypical *pallidus.* Van Someren,[6] however, writes that birds from Mombasa, Changamwe, and Mazeros are "distinctly different from birds collected farther inland in the Taru district (*B. griseus taruensis*) and also from *B. pallidus* of Abyssinia or Nile districts. The series is constant and not damaged by wear." For the coastal birds he uses Sharpe's name *subalaris.* Although at first glance this seems contradictory to Rothschild's observations, in reality it is not, as Abyssinian birds (from central and northern Ethiopia) are not *pallidus* but *bowdleri,* and the birds of the extreme southern part of the Upper White Nile basin are *granti.* It seems that van Someren must have compared his birds, not with topotypical *pallidus,* but with *bowdleri* and *granti.* Therefore, I am not certain of the validity of *subalaris,* but in the absence of typical *pallidus* I prefer to adhere to Sclater's arrangement.

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[4] It should be noted, however, that Sassi (Ann. naturh. Mus. Wien, vol. 30, p. 243, 1916) states that *sylvia* is an *Alseonax* and not a *Bradornis* and that it may even be identical with *Alseonax olivascens* (Cassin). Sclater (Systema avium Æthiopicarum, pt. 2, p. 400, 1930) so disposes of the name.

[5] Bull. Brit. Orn. Club, vol. 33, p. 65, 1913.

(e) *B. p. suahelicus:* The interior of Kenya Colony east to the Taru Desert, northern Tanganyika Territory, Uganda, and the eastern Ituri district, Belgian Congo, Urundi, and Ruanda.

(f) *B. p. murinus:* South Africa north to Angola, Rhodesia, Katanga, Nyasaland, Mozambique, and southern Tanganyika Territory.

3. *Bradornis bafirawari:* Jubaland. A distinct species, possibly related to *B. infuscatus.* One seen by me.

The following names are disposed of as indicated in each case:

Bradornis griseus neumanni Hilgert[7] is a synonym of *B. pallidus granti.*

Bradornis grisea Reichenow[8] is a synonym of *B. pallidus murinus.*

Bradornis parvus Reichenow[9] is a synonym of *B. microrhynchus erlangeri.*

Bradornis pallidus sharpei Rothschild[10] is a synonym of *B. pallidus bowdleri.* Collin and Hartert[11] have shown *sharpei* Rothschild to be preoccupied by *sharpei* Bocage.

Bradyornis muscicapina Hartlaub[12] is not a *Bradornis* at all, but is a synonym of *Muscicapa striata* Pallas.[13]

Because of the average, rather than absolute, value of the subspecific characters and the slight color differences that appear to be of specific value in this group, it is difficult to write a key that will identify every specimen. The following key, however, has been carefully made and has been tested and found suitable with the series in the United States National Museum and some of the birds in the collection in the Museum of Comparative Zoology and in the Academy of Natural Sciences of Philadelphia:

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[6] Nov. Zool., vol. 29, p. 95, 1922.

[7] Katalog der Collection von Erlanger in Nieder-Ingelheim, p. 250, 1908: Are-Dare, Ganale.

[8] Journ. für Orn., 1882, p. 211: Irangi, Tanganyika Territory.

[9] Orn. Monatsb., vol. 15, p. 171, 1907: Asholi, northern Uganda.

[10] Bull. Brit. Orn. Club, vol. 33, p. 65, 1913.

[11] Nov. Zool., vol. 34, p. 52, 1927.

[12] Abh. naturw. Vereine Bremen, 1891, p. 9.

[13] See Rothschild, Bull. Brit. Orn. Club, vol. 33, p. 65, 1913.

KEY TO THE SPECIES AND SUBSPECIES OF BRADORNIS IN NORTHEAST AND EAST AFRICA

a^1. Upperparts brownish, sometimes grayish brown, head not distinctly streaked with darker.
b^1. Wings 80 to 91 mm ---------- microrhynchus microrhynchus
b^2. Wings averaging less than 80 mm.
c^1. Upperparts dark with practically no brownish tinge, wings 75 to 82 mm ---------- m. pumilus
c^2. Upperparts with a brownish or buffy wash.
d^1. Throat and abdomen pure white; wings 70 to 80 mm; upperparts with a brownish wash ---------- m. taruensis
d^2. Throat and abdomen lightly tinged with pale grayish buff; upperparts with a slight buffy tinge; wings 70 to 80 mm ---------- m. erlangeri
a^2. Upperparts brownish, sometimes grayish brown, head not distinctly streaked with darker.
b^1. Upperparts grayish brown, throat pure white, contrasting with the pale grayish brown breast.
c^1. Wings 90 to 100 mm; upperparts with but little gray. pallidus suahelicus
c^2. Wings usually less than 93 mm; upperparts with a noticeable degree of gray.
d^1. Wings small, 80 to 89 mm, usually less than 86 mm ---------- p. modestus
d^2. Wings not so small, 85 to 95 mm, averaging 90 mm ---------- p. murinus
b^2. Upperparts pure brownish (dull, but not grayish), throat and underparts whitish washed with pale buff.
c^1. Under wing coverts pure white ---------- bafirawari
c^2. Under wing coverts not pure white.
d^1. Crown dark brown ---------- p. granti
d^2. Crown not dark brown, not darker than back.
e^1. Wings 92 to 96 mm long ---------- p. bowdleri
e^2. Wings 80 to 86 mm long ---------- p. pallidus and p. subalaris

BRADORNIS MICRORHYNCHUS MICRORHYNCHUS Reinchenow

Bradyornis microrhynchus Reichenow, Journ. für Orn., 1887, p. 62: Irangi, Tanganyika Territory.

Specimens collected:
1 adult female, Athi River, August 29, 1912.
1 adult male, Athi River, September 1, 1912.

Van Someren[14] records typical *microrhynchus* from Magadi Lake to Kendu Bay, while birds from Simba, Kitui, and Nairobi he refers to as "*Bradornis griseus* ? subsp." and writes that they are "much more heavily built than the birds from Tsavo (*taruensis*) and nearer to *B. griseus* and *g. pumilus*. Wings, 80–87 mm." From the material examined it seems to me that birds from the area between Simba and Nairobi (which would include the present two birds from Athi River) are not separable from the birds inhabiting the country immediately to the south (Magadi Lake and country to the west to the Sotik district). Individual variation in this species is so nearly equal to geographic variation that even the races *pumilus* and *erlangeri* (which are far more distinct than are birds of the Athi River from those of the Sotik region) are difficult to identify.

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[14] Nov. Zool., vol. 29, pp. 94–95, 1922.

Lönnberg[15] has also demonstrated the great individual variation of this species.

The male is darker and larger than the female and is in fresh plumage, while the latter is in very worn condition.

BRADORNIS MICRORHYNCHUS ERLANGERI Reichenow

Bradornis griseus erlangeri REICHENOW, *in* Erlanger, Journ. für Orn., 1905, p. 680: Hanole, southern Somaliland.

SPECIMENS COLLECTED:

3 females, Gidabo River, Ethiopia, March 17, 1912.
1 male, Anole Village, Ethiopia, May 18, 1912.
5 males, 3 females, Bodessa, Ethiopia, May 20–26, 1912.
1 male, 2 females, Tertale, Ethiopia, June 7–10, 1912.
2 males, Indunumara Mountains, Kenya Colony, July 16, 1912.
1 male, Endoto Mountains, Kenya Colony, July 19, 1912.
1 male, 1 female, Le-se-dun, Kenya Colony, July 26, 1912.
1 female, 18 miles south of Malele, Kenya Colony, July 29, 1912.
1 male, river 24 miles south of Malele, Kenya Colony, July 29, 1912.
3 males, 4 females, 1 unsexed, Lekiundu River, Kenya Colony, August 5–6, 1912.
1 female, Tharaka district, Kenya Colony, August 14, 1912.

Soft parts: Iris brown.

Inasmuch as size measurements are of systematic significance in this bird, and since such little harmony prevails among systematists concerning the validity of *erlangeri*, I give the dimensions of all these specimens in full (table 44). It may easily be seen that this form, like *pumilus*, is definitely smaller than the typical race (in which the wing length varies from 80 to 91 mm, with an average of approximately 87 mm).

On the whole, the birds collected in March, May, and June are in worn plumage, while those taken late in July and in August are in fresh feathering. This applies to the wings and tails as well as the other parts and therefore implies that the breeding season is probably in March and April. It is satisfying to note that Erlanger's observations on the breeding time in southern Somaliland are in agreement with this indirect evidence.[16] Erlanger found nests with from two to three eggs on April 9 at Harbo-Gobassa, in Gurraland, on the Ganale River near Lagamardu on April 10, and a single egg at Malka-Re on the Daua River as late as May 3.

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[15] Kongl. Svenska Vet.-Akad. Handl., 1911, p. 80.

[16] Journ. für Orn., 1905, pp. 680–681.

TABLE 44.—*Measurements of 31 specimens of* Bradornis microrhynchus erlangeri

Locality	Sex	Wing	Tail	Culmen	Tarsus
ETHIOPIA:		*Mm*	*Mm*	*Mm*	*Mm*
Anole village	Male	81.0	64.0	13.0	20.0
Bodessa	do	81.0	63.0	13.0	21.0
Do	do	78.0	60.0	12.0	21.0
Do	do	81.0	66.0	13.0	21.0
Do	do	79.0	62.0	12.0	21.0
Do	do	79.0	62.0	12.0	20.5
Tertale	do	78.0	62.0	12.5	19.5
KENYA COLONY:					
Indunumara Mountains	do	72.0	59.5	11.5	20.0
Do	do	73.0	61.0	12.5	20.5
Endoto Mountains	do	76.0	61.5	13.0	21.0
Le-se-dun	do	77.0	65.5	12.5	21.0
24 miles south of Malele	do	74.0	59.0	11.5	20.0
Lekiundu River	do	77.0	58.0	13.0	20.0
Do	do	79.0	65.5	13.0	20.0
Do	do	77.0	59.5	12.0	20.0
Do	----------	81.0	65.0	13.0	21.0
ETHIOPIA:					
Gidabo River	Female	80.5	67.5	12.0	20.0
Do	do	81.0	64.0	12.5	20.0
Do	do	78.5	67.0	12.5	19.5
Bodessa	do	73.0	60.0	----------	20.0
Do	do	76.0	59.0	13.0	20.5
Do	do	75.0	62.0	12.5	20.0
Tertale	do	78.5	66.5	13.0	20.0
Do	do	77.0	60.0	12.0	20.0
KENYA COLONY:					
Le-se-dun	do	78.0	62.0	12.0	19.0
18 miles south of Malele	do	77.5	61.0	11.0	19.0
Lekiundu River	do	76.0	63.5	12.0	20.0
Do	do	80.0	65.0	11.5	20.5
Do	do	79.0	58.5	12.5	20.0
Do	do	75.0	61.0	12.0	18.5
Tharaka district	do	76.5	60.5	12.0	21.0

Little appears to be known of the immature plumage of this bird, hence the following observations may be worth recording: Two of the males taken at Bodessa are in an advanced stage of the postjuvenal molt, the new (adult) remiges and rectrices being well developed. Both birds have the pectoral area streaked with dark earth brown, the color being restricted to the shafts of the feathers and to the innermost barbules. The old (juvenal) scapulars, interscapulars, and feathers of the upper back have large subterminal white spots terminally and laterally edged with dark earth brown, the overlapping featherings producing a condition between true squamation and coarse spotting. The feathers of the cheeks and postocular area are laterally margined with whitish, and the crown, nape, and upperparts in general are slightly darker in hue than in the adults.

In fresh plumage, the margins of the upper greater wing coverts and of the remiges vary from pure white to light buffy or even light tawny, but in worn specimens these margins, while much reduced, are always whitish, indicating a certain degree of bleaching or fading as well as abrasion.

BRADORNIS MICRORHYNCHUS PUMILUS Sharpe

Bradyornis pumilus Sharpe, Proc. Zool. Soc. London, 1895, p. 480: Hargeisa, Somaliland.

Specimens collected:

4 males, 6 females, Dire Daoua, Ethiopia, December 1–19, 1911.
1 female, Hawash River, Ethiopia, February 12, 1912.

All these specimens are in worn plumage. The four males have the following dimensions: Wing, 78–83 (average 81); tail, 61–65 (63); culmen, 12–13 (12.5); tarsus, 20–21 (20.3 mm). The seven females: Wing, 75–80 (79.2); tail, 59.5–65 (63); culmen, 11–13 (12.1); tarsus, 19–20.5 (19.9 mm).

As pointed out by Zedlitz[17] Witherby's record of "*Bradyornis pumilus*" from Galkayu[18] probably refers to *B. m. erlangeri*, although the bird from Eil Dab may well be true *pumilus*.

This race appears to be rather uncommon, or, at least, decidedly local in the northern part of its range as it was not met with by Zedlitz, Jesse, Blanford, and other collectors who traveled in Eritrea and northern Ethiopia.

BRADORNIS PALLIDUS SUAHELICUS van Someren

Bradornis murinus suahelicus van Someren, Bull. Brit. Orn. Club, vol. 41, p. 104, 1921; Londiani, Kenya Colony.

Specimens collected:

1 female, Tana River, Kenya Colony, August 19, 1912.
1 female, Tana River, Kenya Colony, August 25, 1912.

The two specimens collected have the following dimensions: Wing, 93; tail, 71; culmen, 14; tarsus, 20 mm. They are in fairly fresh plumage. A series of Kenyan birds examined shows that the molt comes in April and May, a fact that suggests that the breeding season is probably in February and March and possibly earlier.

This flycatcher, according to Granvik[19] is quite common in the scrub and bushy country, but does not live in densely wooded areas, although found outside the edges of forests.

One of these specimens is browner above than the other and is difficult to identify positively. It may be a hybrid between *murinus* and *pallidus*.

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[17] Journ. für Orn., 1915, p. 42.

[18] Ibis, 1905, p. 520.

[19] Journ. für Orn., 1923, Sonderheft, p. 120.

DIOPTRORNIS FISCHERI FISCHERI Reichenow

Dioptrornis fischeri Reichenow, Journ. für Orn., 1884, p. 53; Meru Mountain, Tanganyika Territory.

Specimens collected:

1 male, Athi River near Juja Farm, Kenya Colony, August 31, 1912.
1 male, 2 females, Escarpment, 7,390 feet, Kenya Colony, September 4–8, 1912.

One of the females (U.S.N.M. no. 244566) was prepared by a native skinner and is therefore not too reliably sexed.

This flycatcher has a surprisingly wide range altitudinally when compared with its relatively limited geographical distribution. Although known from altitudes of as little as 2,500 feet and as much as 11,000 feet, nevertheless its range extends for only 7° of latitude and 5° of longitude. Its geographical limits are as follows: Mount Kenya and Mount Elgon west to the eastern province of Uganda, southeast to the Taveta district, south into northern Tanganyika Territory as far as the Kilimanjaro-Meru highlands and the Uluguru Mountains. As far as I know, it has not been recorded from the Paré or the Bura Mountains, but the chances are that it is to be found there as well. In the Usambara Mountains a small, pale form, *amani*, takes its place.

All four specimens are adults in fine, fresh plumage, apparently birds that only recently finished their postnuptial molt. The breeding season is from January to June. The nest is made of dry leaves, moss, fiber, and hair, and is placed in a fork of a tree, usually fairly high up (30 feet or so). The usual clutch is two eggs.

In his field notebooks Doctor Mearns made entries of what he called "*Bradyornis fischeri*" from as far north as the Endoto Mountains. Unfortunately, no specimens were taken there, and inasmuch as his notes on *D. chocolatinus* are entered in his books as "*D. fischeri*," it is unsafe even to assume that the present flycatcher occurs as far to the north as the Endoto Mountains.

DIOPTRORNIS CHOCOLATINUS CHOCOLATINUS (Rüppell)

Muscicapa chocolatina Rüppell, Neue Wirbelthiere, zu der Fauna Abyssinien gehörig, etc., Vögel, p. 107, 1835: Simien, Ethiopia.

Specimens collected:

1 male, 2 females, Arussi Plateau, 9,000 feet, Ethiopia, February 20–22, 1912.
4 females, Cofali, Ethiopia, March 1–2, 1912.
1 male, Malke, Ethiopia, March 3, 1912.
1 male, Ethiopia, March 1, 1912.
4 females, Aletta, Sidamo, Ethiopia, March 7–11, 1912.
1 male, 1 female, Loco, Ethiopia, March 13, 1912.

This flycatcher occurs throughout the highlands of Ethiopia from the Simien Mountains, the Tigre district, and the Bogosland frontier south to the Abaya lakes. In the drainage basin of the Sobat River it is replaced by the little-known *D. reichenowi* Neumann, said to differ from *D. chocolatinus* by its darker, almost blackish, not brownish, gray upperparts, and darker breast. Over a quarter of a century ago Neumann [20] wrote that it was not clear whether this was a distinct species or a geographical race of *chocolatinus*, and so little has been found out since that its status is still unsettled. It appears, however, that the two are geographically complementary and may therefore be looked upon as subspecifically related.

The present form is one of the characteristic birds of the temperate faunal zone of the Ethiopian highlands, its altitudinal range being from about 6,000 to 10,500 feet. Neumann states that he never saw it in the valleys. Erlanger [21] found it in the "cypress" forests of the mountains, and Mearns collected it in the juniper woods of the Arussi Plateau.

The breeding season is from January to late in March. Erlanger found a nest with two small nestlings and one addled egg on March 21 near Gara Mulata. The present specimens are largely in worn plumage, and, in fact, four of them are commencing to molt; all of which is in agreement with what has been stated by Neumann and Erlanger as to the breeding season. It appears that the birds obtained by the Frick expedition had finished breeding not long before they were collected.

Inasmuch as this species is rather uncommon in American collections, I give the measurements of these 15 birds (table 45).

TABLE 45.—*Measurements of 15 specimens of* Dioptrornis chocolatinus chocolatinus *from Ethiopia*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Malke	Male	82.0	71.0	12.0	20.5
Arussi Plateau	do	89.0	80.0	13.5	23.5
Loco	do	85.0	74.0	12.5	22.0
?	do	86.0	71.0	13.0	23.0
Arussi Plateau	Female	87.0	73.0	13.0	23.0
Do	do	87.0	74.0	14.0	23.0
Cofali	do	82.0	66.0	12.5	21.0
Do	do	87.0	75.0	12.0	21.5
Do	do	87.0	75.0	12.0	21.0
Do	do	89.0	75.0	13.0	22.0
Aletta	do	83.5	69.0	13.0	22.0
Do	do	83.0	70.5	13.0	22.0
Do	do	86.0	77.5	12.5	21.5
Do	do	87.0	71.0	12.5	22.0
Loco	do	81.5	71.0	12.5	22.5

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[20] Journ. für Orn., 1905, p. 205.

[21] Ibid., p. 682.

Of all the species of *Dioptrornis* the present one is the nearest in structural characters, although not in color, to *Cichlomyia*, but still it is nearer to the other species of *Dioptrornis* than it is to *Cichlomyia caerulescens.*

Mearns noted this bird frequently along the Hawash River, especially on the upper stretches, January 26–February 13.

MELAENORNIS EDOLIOIDES LUGUBRIS (Müller)

Muscicapa lugubris VON MÜLLER, Beiträge zur Ornithologie Afrikas, Lief 1, pl. 2, 1853: Kolla, Ethiopia.

SPECIMENS COLLECTED:

2 males, 1 female, Gidabo River, Ethiopia, March 15, 1912.
10 males, 7 females, 1 immature female, Gato River near Gardula, Ethiopia, April 1–27, 1912.
1 female, Sagon River, north side, Ethiopia, May 19, 1912.

Soft parts: Iris brown; bill, feet, and claws black.

The literature of this bird is unfortunate in that it is concerned chiefly with what to call the species rather than with any attempt to find out anything about the bird itself. First, we may briefly examine the nomenclature, and then pass on to the facts of its life history and distribution.

Until recently this species has been referred to as *Melaenornis pammelaina* (Stanley), but van Someren has examined Stanley's type and found it to be a glossy blue-black bird (the bird then currently known as *M. ater tropicalis*, now correctly named *M. pammelaina pammelaina*). He then made a hasty survey of the available names for the grayish-black birds and concluded that von Müller's name *lugubris* was the oldest one and was therefore the one to be used.

As Gyldenstolpe,[22] however, has pointed out, Swainson's name *Melasoma edolioides* [23] is really the name to be used as it antedates *lugubris* by 16 years. The species, then, becomes *Melaenornis edolioides* (Swainson).

The disposition of subspecific names depends on what races are considered valid. Here again great diversity of opinion prevails. I have examined a series of 35 specimens from Kenya Colony, Uganda, Belgian Congo, Ethiopia, and Senegal, and after carefully reading the conclusions and evidence given by Reichenow,[24] Ogilvie-Grant,[25] Sclater and Mackworth-Praed,[26] van Someren,[27] Gyldenstolpe, and others, I find myself in complete agreement with only one of these investigators—Doctor van Someren. There are three recognizable subspecies—(1) a dark, long-tailed bird with dark ashy-gray inner edges on the remiges, occurring in Senegal; (2) a grayish-black (lighter than No. 1) bird, smaller in size, with whitish inner margins on the remiges, found in Ethiopia; and (3) an intermediate form nearer to No. 2 than to No. 1 in size but with the inner margins of the remiges ashy gray. The names to be used are as follows:

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[22] Kongl. Svenska Vet.-Akad. Handl., 1924, p. 194.

[23] The natural history of the birds of western Africa, vol. 1, p. 257, 1837: Senegal.

[24] Die Vögel Afrikas, vol. 2, p. 442, 1903.

[25] Ibis, 1913, p. 638.

[26] Ibis, 1918, p. 701.

[27] Nov. Zool., vol. 29, p. 93, 1922.

1. *Melaenornis edolioides lugubris* (Müller): Ethiopia and the Sudanese provinces of Sennar, Kassala, Bahr el Ghazal, and Lado Enclave; and northern Somaliland. This is the bird that van Someren calls *M. lugubris schistacea* Sharpe and that has commonly been called *M. pammelaina* Stanley in literature. Sclater[28] considers *schistacea* a valid race inhabiting southeastern Ethiopia.

TABLE 46.—*Measurements of 21 specimens of* Melaenornis edolioides lugubris *from Ethiopia*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Gidabo River	Male	105.0	103.0	14.0	22.0
Do	do	106.0	106.0	14.0	22.0
Gato River	do	96.0	95.0		22.0
Do	do	102.0	97.0	14.0	22.0
Do	do	103.0	101.0	14.0	23.5
Do	do	104.0	100.0	14.0	24.5
Do	do	101.0	98.0	15.0	22.0
Do	do	97.0	96.0	15.0	23.5
Do	do	102.0	99.0	14.0	23.0
Do	do	103.0	100.0	14.0	22.0
Do	do	104.0	100.0	15.0	22.5
Do	do	100.0	100.0	15.0	23.0
Do	Female	97.5	96.0	15.0	23.0
Do	do	95.0	89.0	15.0	22.5
Do	do	103.0	99.0	14.5	23.0
Do	do	98.0	92.5		23.0
Do	do	98.0	91.0	14.0	21.0
Do	do	98.0	97.0	15.0	21.5
Do	do	96.5	96.0	14.0	23.0
Gidabo River	do	97.0	92.0	15.0	23.0
Sagon River	do	97.5	90.0	15.0	23.0

2. *Melaenornis edolioides ugandae* (van Someren): Kenya Colony, Uganda, eastern Belgian Congo, south to Mwanza, Tanganyika Territory.

3. *Melaenornis edolioides edolioides* (Swainson): Senegal, Gambia, Dahomey, Gold Coast, and Cameroon. This form has a much longer tail than *ugandae* (107–116 mm in *edolioides*, 94–103 mm in *ugandae*).

The present race, *lugubris*, is a denizen of the valleys and lower reaches of the mountains of Ethiopia, where, according to Neumann,[29] it appears to occur up to, but not above, altitudes of 8,000 feet. In northern Somaliland, Erlanger[30] found it not uncommon both in the acacia thornbush country and in the sparse forests of mountains.

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[28] Systema avium Æthiopicarum, pt. 2, p. 410, 1930.

[29] Journ. für Orn., 1905, p. 205.

Judging from the condition of the plumage of the immature bird collected on April 7, it would appear that the nesting season probably falls between October and February. The bird is nonmigratory, according to von Heuglin.[31]

Inasmuch as size variations are the materials on which so many opinions on the systematics of this bird have been based, I give the dimensions (table 46) of the adults collected by the Frick expedition.

Besides the specimens collected, Mearns noted this bird as follows: Gibado River, March 15–17, 10 birds seen; Abaya Lakes, March 18–26, 10 noted; near Gardula, March 26–29, 2 birds, Gato River near Gardula, March 20–May 17, 500; Gato River crossing, May 17, 25 seen; Anole, May 18, 4 birds; Kormali village, May 19, 25 observed; Bodessa and Sagon River, May 19–June 6, 130; Tertale, June 7–12, 33 birds.

MELAENORNIS PAMMELAINA TROPICALIS (Cabanis)

Melanopepla tropicalis Cabanis, Journ. für Orn., 1884, p. 241: Ikanga, Ukamba, Kenya Colony.

Specimens collected:

2 males, Endoto Mountains, Kenya Colony, July 23–24, 1912.
1 male, 35 miles south of Northern Guaso Nyiro River, Kenya Colony, July 29, 1912.
1 female, Lekiundu River, Kenya Colony, August 7, 1912.
3 males, 1 female, 1 unsexed, Tharaka district, Kenya Colony, August 13–14, 1912.
1 adult male, 1 immature male, Tana River, Kenya Colony, August 17–20, 1912.
1 male, Athi River, Kenya Colony, August 29, 1912.

Soft parts: Iris brown; bill, feet, and claws black.

The glossy black flycatcher ranges from South Africa to Angola, Rhodesia, through Tanganyika Territory to Uganda and north-central Kenya Colony, and possibly Ethiopia. In its entire range it has been differentiated into two races as follows:

1. *M. p. pammelaina:* Natal, Zululand, Swaziland, west through the Transvaal and northern Cape Province to Damaraland, Namaqualand and Ovampoland, north to Angola, the Zambesi River, southern Nyasaland and southern Mozambique. This form is the larger of the two; wings, 105–115 mm.

2. *M. p. tropicalis:* Central Mozambique and Nyasaland north through Tanganyika Territory to central Uganda (west to Ankole) and to the Endoto Mountains in Kenya Colony.

This is the form that has been called *M. ater tropicalis* by most writers, as *pammelaina* was thought to be a grayish-black bird. Van

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[30] Journ. für Orn., 1905, p. 682.
[31] Ornithologie Nordost-Afrika's. vol. 1, p. 428, 1869.

Someren, however, found the latter to be a glossy blue-black bird and suggested that the name *pammelaina* must be used instead of *tropicalis.* It has recently been found, however, that Stanley's type came from Mozambique, not Ethiopia, so *pammelaina* replaces *ater*, not *tropicalis.*

The characters of this race are: (1) Smaller size, wings 96–109 mm; and (2) much more bluish sheen on the whole body than in the nominate form.

The dimensions of the present series are as follows: Males—wings 100–105 (average, 102.5); tail 84–91 (average, 88.4); culmen 12.5:15 (average, 13.9 mm). Females—wings, 99; tail, 86–88 (average, 87), culmen, 13–14 (average, 13.5 mm).

The immature bird collected on August 17 is in an early stage of the postjuvenal molt. The adults taken at the same time (August 13–29) are not molting but are in fairly worn plumage. Inasmuch as the breeding season in Kenya Colony is from March to June, it appears that the juvenal plumage is worn for only a few months. The adults molt just after the nesting season and are through by the end of June.

This flycatcher was met with in many places. I find the following entries in Mearns's diary: Plains south of, and at base of Endoto Mountains, July 19–24, 40 birds noted; Er-re-re, July 25, 10 seen; Le-se-dun, July 26, 2 birds; 18 miles south of Malele, July 28, 4 noted; Northern Guaso Nyiro River, July 31, 10 birds; Lekiundu River, August 4–8, 40; Meru and Kilindini, Equator, August 9–10, 14 seen; Tharaka district, August 12–14, 200; Tana River, August 15–23, 166 noted; Thika River, August 23–26, 2 seen; west of Ithanga Hills, August 28, 4 birds; between the Thika and Athi River, August 29, 30 noted; Athi River near Juja Farm, August 30, 20 birds observed.

CHLOROPETA NATALENSIS SIMILIS Richmond

Chloropeta similis RICHMOND, Auk, vol. 14, p. 163, 1897: Mount Kilimanjaro.

SPECIMENS COLLECTED: 1 male, Escarpment, 7,390 feet, Kenya Colony, September 10, 1912.

In the study of this specimen and those collected by the Smithsonian–Roosevelt expedition, I have examined a series of 15 birds, including 2 of the typical, southern form, and the type and 3 paratypical topotypes of *similis*, and 7 topotypes of *kenya.* I have no hesitancy in declaring that *Chloropeta kenya* Sharpe[33] is a synonym of *similis.* Furthermore, on the basis of Gyldenstolpe's notes[34] and those of Sassi[35] I am equally confident that *Chloropeta schubotzi*

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[33] Bull. Brit. Orn. Club, vol. 12, p. 35, 1901: Mount Kenya.

[34] Kongl. Svenska Vet.-Akad. Handl., 1924, p. 206.

[35] Ann. naturh. Hofmus. Wien, vol. 30, p. 249, 1916.

Reichenow[36] is also identical with *similis.* The recent authors who have used Sharpe's name *kenya*, such as van Someren,[37] have invariably lacked typical material of *similis* to compare with their Mount Kenya specimens (*kenya*).

The range of *similis*, as far as known at present, is from the Uluguru Mountains[38] and Mounts Meru and Kilimanjaro, to Mount Kenya, Escarpment, Aberdares, Molo, Mount Elgon, Ruwenzori, and the Birunga Volcanoes (Mounts Muhavura, Sabineo, Mikeno, and Karissimbi) to the mountains west of Lake Tanganyika (6,500 feet). The present species is a mountain form and in regions where it and *C. massaicus* both occur, they are altitudinally separated. This so impressed Mackworth-Praed that he wondered whether the two might not be considered conspecific, asking if it is "possible to maintain a 'geographical' race on a difference of 1000 ft. or so in elevation? I should personally consider it a better division than mere distance; but it is a point of interest." On Mount Kilimanjaro *similis* is known from 8,000 to 11,500 feet; on Mount Elgon, 11,000 feet; Mount Kenya, 8,500 feet; the Birunga Volcanoes, 9,000 to 11,500 feet; Ruwenzori, 6,000 to 10,000 feet. It is not known from the Usambara Mountains.

This suggests a reason why the species does not occur in Ethiopia, namely that many of the high mountains in that country are more grassy, and are without true mountain forest to the edge of which the species is ecologically restricted. The species of the lower country, *C. massaicus*, ascends to 8,500 feet in Ethiopia, apparently owing to the fact that no barrier in the form of a true mountain forest prevents it from spreading into the higher reaches of the mountains.

Gyldenstolpe points out that though in his original description of the type of *similis* Richmond states that the sides of the face and the ear-coverts are like the upperparts in color, this is not always the fact and that the sides of the face and the auriculars are usually slightly more yellowish, less greenish, than the upperparts. I have examined the type and topotypes with this in mind and find that Gyldenstolpe is correct, that is, the cheeks and auriculars are very slightly yellower, less greenish than the back and the upperparts generally.

The present specimen has the following dimensions: Wing, 58; tail, 56; culmen, 13; tarsus, 22 mm.

Little is known of the breeding season. Van Someren[39] found it nesting at Nairobi and procured nestlings on June 10.

The genus *Chloropeta* is a link, in many ways, between the Muscicapidae and the Sylviidae.

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[36] Orn. Monatsb., 1908, p. 119: Rugege Forest, east of Lake Kivu.
[37] Nov. Zool., vol. 29, p. 98, 1922.
[38] Cf. Friedmann, Ibis, 1928, p. 84.
[39] Ibis, 1916, p. 380.

BATIS MOLITOR PUELLA Reichenow

Batis puella Reichenow, Jahrb. Hamburg wiss. Anst., vol. 10, pt. 1, p. 125, 1893: Bussisi, Tanganyika Territory.

Specimens collected:

3 males, 1 female, Tana River near mouth of Thika River, Kenya Colony, August 23–27, 1912.

1 male, 1 female, Athi River near Juja Farm, Kenya Colony, August 31, 1912.

As far as the total comparative material available indicates, the conclusions reached by Sclater [40] seem correct. There are three valid races of *B. molitor*, as follows:

1. *B. m. molitor:* Demaraland, Bechuanaland, the eastern Cape Province, the Transvaal, and Natal.

2. *B. m. soror:* The lower Zambesi Valley, the Shiré drainage basin, southern Nyasaland, through Mozambique, to eastern Tanganyika Territory, north to Zanzibar. According to Sclater, *B. molitor littoralis* Neumann [41] and *B. soror pallidigula* van Someren [42] are synonyms of *B. m. soror.* I have seen no Zanzibar birds and can not therefore form an opinion, but it may be that the birds of the coastal districts of Tanganyika Territory are separable, as two female specimens from Morogoro and Kilosa have darker brown throat spots than a female from Lumbo. If further material bears out this difference, these Tanganyikan birds would have to be separated under Neumann's name *littoralis.* This, I believe, will have to be done. In this event, the range of *littoralis* would be from Zanzibar and Morogoro south at least to the mouth of Rovuma River. Schuster [43] collected a pair of birds in the mangroves at Kingani in the delta of the Rovuma, and found them to be best identified as *littoralis.* Whether this form extends farther south is not known.

3. *B. m. puella:* From the Kivu area and Ruwenzori east through Uganda to Kenya Colony, north to Mount Elgon and the Northern Guaso Nyiro River, south through the interior of Tanganyika Territory to Lake Nyasa, the Katanga, Northern Rhodesia, the Upper Zambesi, and Angola. Again, owing to lack of adequate material, I follow Sclater in assuming that *B. m. taruensis* van Someren [44] and *B. m. montana* Sjöstedt [45] are not separable from *puella.* The former race, at least, may be valid.

The characters by which the races may be identified are as follows: *B. m. soror* differs from *molitor* in having a narrower black breast band in the male, and a much paler throat spot and pectoral band in the female. The northern race *puella* is similar to *molitor* in the male (the breast band is only slightly narrower in the former than in the latter) but the females of *puella* have the throat spot and breast band dark chocolate-brown, darker than in *molitor*, and very much darker than in *soror*.

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[40] Bull. Brit. Orn. Club, vol. 45, p. 52, 1925.

[41] Journ. für Orn., 1907, p. 356: Zanzibar.

[42] Bull. Brit. Orn. Club, vol. 41, p. 103, 1921: Lumbo, Mozambique.

[43] Journ. für Orn., 1926, pp. 712–713.

[44] Bull. Brit. Orn. Club, vol. 41, p. 103, 1921: Maungu, Kenya Colony.

[45] Wissenschaftliche Ergebnisse der schwedischen zoologischen Expedition nach dem Kilimandjaro . . . Deutsch-Ostafrika, 1905–6, etc., vol. 3, p. 109, 1908: Mount Kilimanjaro.

A series of 27 specimens of *puella* have the following dimensions: Males—wing, 57–62; tail, 39–45; culmen, 12–14; tarsus, 16–19 mm. Females—wing, 56–62; tail, 41–48; culmen, 12–14; tarsus, 16–17.5 mm.

Mearns noted that this flycatcher has a nasal, honking note similar to that produced by a nuthatch, *Sitta carolinensis*.

BATIS MINOR ERLANGERI Neumann

Batis minor erlangeri Neumann, Journ. für Orn., 1907, p. 353: Gara Mulata, near Harrar, Ethiopia.

Specimens collected:

1 adult male, Aletta, Ethiopia, March 11, 1912.
1 adult male, 2 adult females, Gidabo River, Ethiopia, March 15–16, 1912.
1 adult female, northeast Lake Abaya, Ethiopia, March 16, 1912.
2 adult males, 1 subadult male, 2 adult females, Gato River, near Gardula, Ethiopia, April 10–May 9, 1912.
2 adult females, Bodessa, Ethiopia, May 25–27, 1912.

The races of *Batis minor* have been dealt with by Neumann,[46] Sclater and Mackworth-Praed,[47] and by Sclater.[48] The main difference between the first two is the question of the proper name for the species. Neumann uses *minor* and Sclater and Praed use *bella*. Much ink has been spilled over the question, and I do not intend to add any to it, as Gyldenstolpe[49] has shown that Elliot's description of *bella* does not fit the birds currently known as *minor*. Sclater examined Elliot's type and found[50] that it was the same as *Batis orientalis somaliensis* Neumann, over which Elliot's name has priority.

Furthermore, in answer to an inquiry of mine, John T. Zimmer has kindly reexamined the type of *bella* and finds that the under wing coverts and axillars are black, with no white except on the edge of the wing. The white superciliary stripe is present but much reduced in width over the eye, so that, in certain arrangements of the feathers, it is entirely concealed except over the lores, where it is very much broader; hence Elliot's failure to observe it. The measurements of the type are: Wing (flattened), 57.5; tail, 42.5; culmen from base, 15.25; tarsus, 17 mm.

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[46] Journ. für Orn., 1907, pp. 352–355.
[47] Ibis, 1918, pp. 708–709.
[48] Bull. Brit. Orn. Club, vol. 45, pp. 50–57, 1925.
[49] Kongl. Svenska Vet.-Akad. Handl., 1924, p. 209.
[50] Bull. Brit. Orn. Club, vol. 45, p. 55, 1925.

The subspecies found in northeastern and eastern Africa are as follows:

1. *B. m. minor:* Southern Somaliland. Characters: Small size, wings, 51–54 mm. As pointed out by Neumann, the female type of *minor* is really a female of *Batis perkeo.*

2. *B. m. erlangeri:* Ethiopia, from the mountains near Harrar southwestward to the lake district of southern Shoa and the Djamdjam country, probably also to the drainage basin of the Omo River, south to the north end of Lake Stefanie. Characters: Similar to *minor* but much larger, wings 60–67 mm. The female has a darker, duskier bay-brown pectoral band.

3. *B. m. chadensis:* From Lake Chad through the upper Ubangi-Shari region to Darfur and Kordofan and the northwestern Bahr el Ghazal to the Lower White and Blue Niles and to the Red Sea Province of the Sudan, intergrading with *erlangeri* on the Sudan-Ethiopian border in the valleys of the Sobat, Blue Nile, and Baro Rivers. Characters: Wing, 55 mm. The back in this race (which I have not seen) is gray, washed with reddish. Grote,[51] however, writes that the color character is more characteristic of young birds than of adults. Furthermore, Lynes[52] suggests that "seasonal changes and first plumages will explain certain differences in colour which have been related to geography."

4. *B. m. nyansae:* From Malakal and Lake No on the Upper White Nile, and through the central and southern parts of the Bahr el Ghazal Province, Anglo-Egyptian Sudan, south through Uganda to Lake Victoria, east to extreme western Kenya Colony (Kisumu, Kaimosi, Kakamega, and the slopes of Mount Elgon). Characters: Wings, 55–58 mm; the crown of the male with more metallic sheen than in the last two, the breast band of the female lighter than in *erlangeri*, but darker than in *minor;* the back of the female not pure gray, but lightly washed with olive-brown.

5. *B. m. suahelicus:* The coastal districts of southern Kenya Colony and northern Tanganyika Territory (Mombasa to Dar es Salaam and the Pangani River, inland to the Taru desert, the eastern Serengetti plains, and the Morogoro area). Characters: Similar to *erlangeri* but smaller; wings, 55–58 mm.

The western races have been reviewed by Bannerman[53] and need not concern us here.

Some authors have attempted to use the white on the outer rectrices as a systematic character, but the present series is very variable in this regard. The two extremes in the width of the white tips are 4.5 and 11 mm. In one specimen the white area does not extend completely across the inner web of the outermost rectrix. The outer web is usually wholly white except basally.

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[51] Journ. für Orn., 1924, p. 515.

[52] Ibis, 1925, p. 124.

[53] Rev. Zool. Africaine, vol. 9, pp. 415–416, 1921.

The size variations of the present series are shown in table 47.

I have not been able to discover anything of the breeding season of *erlangeri*, but van Someren[54] found *nyansae* nesting in June and November in Uganda, and Lynes found *chadensis* breeding in spring in Darfur.

According to Zedlitz,[55] this bird is a mountain species and is replaced in the lowlands of Eritrea and northern Ethiopia and Somaliland by *B. orientalis*, but the two occur together at altitudes of from 3,000 to 4,000 feet. He assumes the breeding season of *erlangeri* to be in February.

TABLE 47.—*Measurements of 12 specimens of* Batis minor erlangeri *from Ethiopia*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Aletta	Male	67.0	51	12.0	16.0
Gidabo River	do	61.5	46	13.0	15.0
Gato River	do	61.5	43	12.0	16.0
Do	do	59.5	43	13.0	16.0
Do	do	58.5	46	13.0	16.0
Gidabo River	Female	64.0	47	12.0	16.5
Do	do	61.5	45	13.0	16.0
Abaya Lake, northeast	do	57.0	45	12.5	16.0
Gato River	do	64.0	46	13.0	17.0
Do	do	62.0	42	13.0	17.0
Bodessa	do	59.5	45	12.5	16.5
Do	do	61.0	47	12.5	17.0

BATIS ORIENTALIS BELLA (Elliot)

Pachyprora bella ELLIOTT, Field Columbian Mus. Publ. Orn. Ser., Publ. 17, vol. 1, no. 2, p. 47, 1897: Hullier, Somaliland.

SPECIMENS COLLECTED:

5 males, 3 females, Dire Daoua, Ethiopia, December 1–21, 1911.
1 male, Sadi Malka, Ethiopia, January 30, 1912.

Batis orientalis somaliensis Neumann is a synonym.

This species may be told from *B. minor*, which occurs together with it, in the following way: The females of *orientalis* have a wide, broad, brown pectoral band; those of *minor* have a narrow, much darker brown breast band; males of *orientalis* have bluish-gray crowns, while those of *minor* have blackish crowns. Furthermore, the races of *minor* are all correspondingly larger than those of *orientalis*, quite the opposite of what the name implies.

Batis orientalis inhabits Eritrea, Ethiopia, and Somaliland. I know of no instance of its ranging into the Sudan or northern Kenya Colony. It breaks up into two races, as follows:

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[54] Ibis, 1916, p. 381.

[55] Journ. für Orn., 1910, pp. 792–793.

1. *B. o. orientalis:* Eritrea, Bogosland, south to the western part of the Hawash Valley and into northern Shoa.

2. *B. o. bella:* Northern Somaliland, the eastern part of the Hawash Valley, south to eastern Arussi-Gallaland and Gurraland to the northern part of Italian Somaliland. This form is similar to *orientalis* but has the crown lighter in both sexes, and is also larger, but the size variations of this form completely include those of the typical race. Wings—*orientalis*, 52–56; *bella*, 52.5–59 mm.

The dimensions of the present series are as shown in table 48.

TABLE 48.—*Measurements of eight specimens of* Batis orientalis bella *from Ethiopia*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Sadi Malka	Male	59.0	41.5	12.5	15.5
Dire Daoua	do	56.0	39.0	12.0	
Do	do	57.0	39.0	11.5	15.0
Do	do	56.5	40.0	12.0	15.5
Do	do	55.5	40.0	12.0	16.0
Do	Female	54.0	40.0	12.0	15.5
Do	do	54.0	40.0	12.0	15.0
Do	do	56.0	40.0	12.0	17.0

The birds vary considerably in the extent of white on the nape and upper back, and also in front of the eyes, but these differences are wholly individual. One of the males, which is apparently subadult, as it has some reddish-brown feathers on the lateral ends of the black pectoral band, is peculiar in that the rectrices, instead of being bluntly rounded terminally, are noticeably attenuated, the white tips on the outermost pair are three times as wide as in any of the other specimens, and it has the inner web narrowly margined with white, as well as having the whole of the outer web white.

Erlanger[56] found a nest with two eggs in northern Somaliland on February 21. This is the only indication of the breeding season of which I know, but the season is probably fairly prolonged.

Mearns found this bird to be common along the Hawash River and from Dire Daoua to Gada Bourca.

BATIS PERKEO Neumann

Batis perkeo NEUMANN, Journ. für Orn., 1907, p. 352: Darassam, southeast of Lake Abaya, Ethiopia.

SPECIMENS COLLECTED:

1 adult male, Indunumara Mountains, Kenya Colony, July 17, 1912.
1 adult male, 40 miles south of Malele, Kenya Colony, July 30, 1912.

Van Someren[57] has considered *perkeo* to be a race of *Batis soror.* The females of *soror* (and its geographic form *pallidigula*), however, have a brown spot on the upper throat above the brown breast band, while, to judge from Neumann's notes,[58] females of *perkeo* have no spot above the pectoral band. I have seen no females of *perkeo*, but Neumann,[59] in stating the characters of the species of the genus *Batis*, writes that this brown throat spot is diagnostic of *B. molitor* and its races, while *perkeo* is said to be very close (almost conspecifically) to *orientalis*. In fact, if a specimen of *B. orientalis somaliensis* had not been collected at the same time and place as several of *perkeo*, Neumann writes that he would have called the latter only a small subspecies of *B. orientalis*. If van Someren's series of *perkeo* have brown throat spots, they are wrongly identified. The females have only a slight yellowish wash on the throat in *perkeo*.

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[56] Journ. für Orn., 1905, p. 685.

[57] Nov. Zool., vol. 29, p. 101, 1922.

This, by far the smallest species of the genus, ranges from southern Shoa, southern Arussi-Gallaland, Gurraland, Garre-Lewin, and Somaliland, south to north-central Kenya Colony, and possibly along the subcoastal plain to the Taru Desert and the Serengetti Plains near Kilimanjaro. Lönnberg[60] records birds from Njoro, on the northern side of the Northern Guaso Nyiro River as *Batis orientalis somaliensis* but writes that they are intermediate in size between that form and *perkeo*, "and with regard to the rusty tint on one of the females they may resemble '*perkeo*' perhaps even more than '*somaliensis*.' The question is, however, if the difference is constant for at the type locality for '*perkeo*' * * * '*somaliensis*' is said to occur as well. The fact that of the two females in my collection from the same locality one has that rusty tint * * * but the other not, speaks against its value even as a subspecific characteristic." It is obvious from the above quotation that Lönnberg was attempting to make *perkeo* a race of *orientalis* and assumed that because he found two types of birds together they were the same, rather than two specific aggregates. In other words, his experience was just the same as Neumann's, but the conclusions of the latter seem to be the correct interpretation of the facts. Zedlitz[61] correctly questioned Lönnberg's notes and first connected the latter's Njoro records with Neumann's Ethiopian ones by putting in print the capture of two specimens at Marsabibi in the Rendile country east of Lake Rudolf.

Both specimens collected are in molt (apparently the postjuvenal molt, as the old remiges are dark brown, the new ones much blacker). Their dimensions are as follows: Wing, 47.4–48; tail, 29–31; culmen, 11–12; tarsus, 16 mm.

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[58] Journ. für Orn., 1907, p. 352.

[59] Ibid., p. 349.

[60] Kongl. Svenska Vet.-Akad. Handl., vol. 47, no. 5, pp. 83–84, 1911.

[61] Journ. für Orn., 1915, pp. 43–44.

Erlanger[62] found a nest, with eggs, of *perkeo* (called *B. orientalis minor* in his paper) on February 21 at Darassam, Gurraland, Ethiopia. This is all I have been able to discover about the breeding season of this flycatcher.

PLATYSTEIRA CYANEA AETHIOPICA Neumann

Platysteira cyanea aethiopica NEUMANN, Journ. für Orn., 1905, p. 210: Banka, Malo, Ethiopia.

SPECIMENS COLLECTED:

1 male, Aletta, Sidamo, Ethiopia, March 7, 1912.
1 male, Loco, Sidamo, Ethiopia, March 13, 1912.

In the identification of these 2 specimens I have examined a series of 18 birds representing 3 of the 4 valid races, and I find that this material corroborates the results arrived at by Neumann. Gyldenstolpe[63] states that *albifrons* (the one of which I have seen no material) is probably a distinct species and not a geographic form of *cyanea.*

Two forms occur in eastern Africa. They are:

1. *P. cyanea nyansae* Neumann: The countries to the west and north of Lake Victoria (Bukoba, Masaka, Ankole, Unyoro, and central provinces of Uganda) west to the eastern Ituri district, Belgian Congo, east to the north Kavirondo, Kakamega, and Elgon districts in western Kenya Colony, south to the Kivu area, and north to the southern Anglo-Egyptian Sudan. This race is like the typical, western form (described from Senegal) but has less gloss on the feathers of the back, and has a faint white line on the forehead. Wings—males, 64–70; females, 64–68 mm.
2. *P. cyanea aethiopica:* Shoa, the Omo region, the drainage areas of the Blue Nile and the Hawash River, Ethiopia. Similiar to *nyansae* but smaller; wings—male, 59–63 mm (no females seen).

The measurements of the present two specimens are: Wing, 62–62.5; tail, 47–48; culmen, 13–14.5; tarsus, 17–18 mm.

According to Neumann, this bird lives in dense woods but not in the high mountains. Its altitudinal range appears to be from 6,500 to 8,300 feet.

PLATYSTEIRA PELTATA JACKSONI Sharpe

Platysteira jacksoni SHARPE, Ibis, 1891, p. 445: Sotik, Kenya Colony.

SPECIMENS COLLECTED: 1 immature female, Meru Forest, Equator, Kenya Colony, August 10, 1912.

This specimen agrees with two similarly immature birds from Mozambique and Tanganyika Territory and is therefore identified with them as *P. peltata.* I have seen no young specimens of *Platysteira cyanea*, however, and can not see (from literature) how to tell the two species apart in this plumage. Although there is, then, a possibility that the present bird may be *cyanea*, it is rendered very unlikely, as *cyanea* has not been recorded from Mount Kenya and the adjacent Meru Forest as far as I have been able to learn. The subspecific identification as *jacksoni* is based solely on geographical grounds.

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[62] Journ. für Orn., 1905, p. 685.
[63] Kongl. Svenska Vet.-Akad. Handl., 1924, p. 214.

Platysteira cryptoleuca Oberholser (not Mearns, as stated by van Someren[64]) is a synonym. I have examined the type and paratypes of *cryptoleuca* and can find no constant character to support its validity. When he described this bird, Oberholser[65] had no comparative material to study, and he was misled by the fact that the published descriptions of *peltata* failed to mention the presence of a hidden white patch on the cervix. All specimens of *peltata* have this character.

The Angolan race *mentalis* I have not seen.

The present race (no adults seen) is said to differ from typical *peltata* in having the throat and head of the female blue-black instead of green-black. It occurs in western Kenya Colony from Mount Elgon and Meru (near Mount Kenya) southwest to the Katanga. The nominate form occurs along the eastern coast as far north as the Tana River.

Van Someren suggests that the birds of the coastal plain may be separated from those of the interior on the basis of the larger size of the latter. This is not corroborated by the small series I have been able to examine.

TERPSIPHONE VIRIDIS FERRETI (Guérin-Méneville)

Tchitrea ferreti Guérin-Méneville, Rev. Zool., vol. 6, p. 162, 1843: Abyssinia.

Specimens collected:

1 male, Duletcha, Ethiopia, January 24, 1912.
1 female, Hawash River, Ethiopia, February 11, 1912.
1 female, near Loko, Sidamo, Ethiopia, March 6, 1912.
1 female, Aletta, Sidamo, Ethiopia, March 9, 1912.
1 male, Lake Abaya, Ethiopia, March 19, 1912.
3 males, near Gardula, Ethiopia, March 28–29, 1912.
4 males, 4 females, 1 juvenal male, 1 unsexed, Gato River, Ethiopia, March 30–May 8, 1912.
2 males, 2 females, 1 juvenal male, Bodessa, Ethiopia, May 22–June 1, 1912.
1 female, Tertale, Ethiopia, June 17, 1912.
1 female, Endoto Mountains, south, Kenya Colony, July 23, 1912.
1 male, Athi River, Kenya Colony, August 29, 1912.

Soft parts: Eye wattles, bill, feet, and claws blue.

The generic names *Terpsiphone* and *Tchitrea* have replaced each other in such an endless series of cycles of opinion that it appears that the definite solution published in 1910 has been overlooked and hence may well be quoted here. Stejneger,[66] in a footnote in Jouy's paper on the paradise flycatchers of Japan and Korea, writes:

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[64] Nov. Zool., vol. 29, p. 101, 1922.

[65] Proc. U. S. Nat. Mus., vol. 28, p. 913, 1905: Useri River, Mount Kilimanjaro.

> The generic term *Terpsiphone* (Gloger, 1827) is here used in preference to *Tchitrea* (Lesson, 1831) for the following reason. *Terpsiphone*, as already stated by Oberholser (Proc. U. S. Nat. Mus., vol. 22, 1900, p. 245), is only a substitute for "*Muscipeta* Cuv.," and the type of the latter is of necessity also the type of the former. Cuvier instituted the genus *Muscipeta* in 1817 (Regne Animal, vol. 1, p. 344) for a number of "moucheroles", the first species enumerated being *Todus regius* Gmelin. This fact probably accounts for Oberholser's statement that this species is the type of *Muscipeta*. The first species rule not having been incorporated in the Rules of Nomenclature of the International Zoological Congress, the type has to be ascertained according to article 30 of this code. Dr. C. W. Richmond has kindly called my attention to the fact that Vigors, as early as 1830 (Mem. Raffles, p. 657), consequently even before Lesson's *Tchitrea* appeared, designated *Muscicapa paradisi* Linnaeus as the type of *Muscipeta*. This species then becomes also the type of *Terpsiphone* (1827) which takes the place of *Muscipeta* Cuvier, because the latter is preoccupied by *Muscipeta* Koch, 1816.

Terpsiphone viridis is a bird of striking plumage variations and has, as a consequence, been much studied. The latest review is that by Stresemann,[67] who recognizes four forms—*viridis*, *plumbeiceps*, *perspicillata*, and *suahelica*. In a later publication[68] he states that *plumbeiceps* is a distinct species, a conclusion with which all recent investigators agree. There are left, then, three races of *T. viridis*. To these three I find it possible (and natural) to add at least two and probably three more. The races and their ranges are as follows:

1. *T. v. viridis:* The Upper Guinean region from Senegal east through the Sudan to the Bahr el Ghazal and the West Nile district of Uganda and the White Nile.

2. *T. v. speciosa:* Lower Guinea from Cameroon and Gaboon and Loango east through the Belgian Congo to central Uganda, where it intergrades with *suahelica* and *viridis*. Very similar to *viridis* (perhaps only doubtfully separable) but generally darker (where not white) and with the sheen extending caudally to the upper abdomen, whereas in *viridis* it is confined to the chin, throat, and upper breast; the least distinct of all the forms. Both this and the typical race have white-backed, white-tailed adult males, but long-tailed brown birds occur as well. It appears that it usually takes three years to acquire the white stage. I follow Sclater[69] in using Cassin's name for this race. I am not convinced, however, that *melampyra* Verreaux is a different bird, as Sclater considers it.

3. *T. v. ferreti:* Eritrea, Bogosland, Ethiopia, and Kenya Colony south to the Tana River, south of which it intergrades with *suahelica*.

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[66] Proc. U. S. Nat. Mus., vol. 37, p. 652, 1910.

[67] Journ. für Orn., 1924, pp. 89–96.

[68] Orn. Monatsb., vol. 34, p. 87, 1926.

[69] Systema avium Æthiopicarum. pt. 2, p. 433, 1930.

Occasionally specimens best identified with *ferreti* are found as far south as the Athi River. This race is like *viridis*, but, in the great majority of cases assumes the white-backed, white-tailed plumage in the second (not the third) year, so that long-tailed (i. e., adult) brown birds are scarce.

4. *T. v. harterti:* Southwestern Arabia (Yemen district). Similar to *ferreti* but with noticeably larger bills (in males only), measuring 20 mm as against 18 mm in the latter.

5. *T. v. suahelica:* Southeastern Uganda, the Sotik and southern Kikuyu and Ukamba districts east to the Taveta Forest in Kenya Colony, south through Tanganyika Territory intergrading with *perspicillata* in the valley of the Rovuma River. This race never assumes the white plumage found in the above three, but has white edges on the secondaries in adult birds.

6. *T. v. perspicillata:* South Africa from Cape Town east to Pondoland, north to Natal, the Transvaal, Zululand, Swaziland, Nyasaland, and Mozambique, merging with *suahelica* along the Mozambique–Tanganyikan boundary. Occasionally specimens of *perspicillata* are found in central Tanganyika Territory, the northernmost locality known to me being Bagilo in the Uluguru Mountains, but such cases are uncommon. This race never gets any white, even on the edges of the remiges. I think Sclater is wrong in considering this form specifically distinct from *viridis;* and *plumbeiceps* is clearly a distinct species from both.

Of the long-tailed birds in the present series three are brown-backed and brown-tailed, five are brown-backed and either wholly white-tailed or with brown outer and white inner rectrices, and only two are white-backed and white-tailed. The five with white tails and brown backs have much white on the wings and are freshly feathered except on the brown backs. It therefore appears that in molting into the white plumage the tail is affected before the back. I have seen no specimen of this or any other race in which the reverse is true, i. e., with a white back and brown tail. The white rectrices vary in that some have black shafts (and even in one case broad shaft streaks) while others are wholly white.

That the species breeds in its second year is shown by the fact that one of the brown-backed, long white-and-brown-tailed males was observed with its mate and nest and young at Gato River.

Males have wings of from 78 to 88 mm in length, females from 74.5 to 85 mm. The tails in adult males (with fully developed elongated middle rectrices) vary from 320 to 400 mm, the extent of the central pair of rectrices beyond the ends of the lateral ones measuring from 220 to 294 mm.

A nestling male, taken from the nest on May 1 at Gato River, is partly clothed in the juvenal plumage—black crown and occiput, reddish-brown back, dark fuscous wings and tail, and light smoky-gray feathers on the sides and flanks. A band of dusky brownish-gray feathers crosses the breast, but the middle of the abdomen, the chin, and the throat are bare. The feather tracts are well indicated on the chin and throat and, as they are rather unusual, may be briefly described. A malar band extends from the chin caudally as far as a perpendicular dropped from the auriculars. A median line of feathers extends from the chin down the upper throat to a point in line with the middle of the eyes. Two oblique, transverse bands connect this with the ends of the malar bands.

A nest and three eggs were collected at Gato River on April 13. The nest is a compact, deep cup 60 mm in diameter (outside measurements) and 33 mm deep (inside dimension). It is made of dry plant fibers, fine rootlets, and dead grasses, abundantly hung on the outside with white, papery seed pods (8 and 9 mm long and 5 or 6 mm wide), grayish "leaf skeletons," and pieces of dead leaves. The support is from beneath, the nest being saddled in a crotch formed by four small twigs. The eggs are whitish suffused somewhat with pinkish, chiefly at the large pole. A circle of large, dull, clouded grayish-brown spots and blotches is present near the large pole, and a few blotches are present on each side of this band. Measurements—20.5 by 15.5 mm. According to Mearns, a male white-tailed bird was seen in the same tree as the nest.

Along the Hawash River, Mearns saw this species occasionally, usually in pairs. The call note is recorded as a long single note, softly whistled. In another entry Mearns writes that "the long, white-tailed flycatcher is one of the shiest birds; but when the old male fancies himself alone and secure, he bursts forth in loud cries of *pee–wee–weé*, often repeated. The alarm note is a chirp, and it also utters a soft, round, single note, probably a call to the female."

Family MOTACILLIDAE, Wagtails, Pipits

MOTACILLA ALBA ALBA Linnaeus

Motacilla alba LINNAEUS, Syst. Nat., ed. 10, p. 185, 1758: Europe; Sweden (Hartert).

SPECIMENS COLLECTED:

1 male, 1 female, Djibouti, French Somaliland, November 22, 1911.
3 males, Dire Daoua, Ethiopia, December 4–19, 1911.
1 female, Sadi Malka, Ethiopia, December 20, 1911.

The white wagtail is another European bird that winters in Africa, south as far as Gambia, northern Nigeria, the northern Belgian Congo, southern Uganda, and south-central Kenya Colony. The Indian race, *dukhuensis*, characterized by its lighter grayish upperparts, is said to migrate to Arabia, southern Ethiopia, and northern Kenya Colony, but this is not definitely known as yet. The present specimens are all typical *alba*. They are all in the white-throated winter plumage.

Von Heuglin met with this wagtail in winter in Ethiopia and adjacent parts of the Nile Valley in the Sudan, and Blanford found it fairly common in the former country, both in the highlands and in the coastal plains, and noted it as late as the beginning of May at Lake Ashangi. Zedlitz[70] writes that in the Eritrean–Ethiopian border it is an abundant winter visitor, especially in the highlands, where it is to be found along the little streams until early in March, when it leaves.

MOTACILLA AGUIMP VIDUA Sundevall

Motacilla vidua SUNDEVALL, Öfv. Kongl. Vet.-Akad. Förhandl., vol. 7, p. 128, 1850: Type in the Stockholm Museum from Syene, i. e., Assouan, Upper Egypt.

SPECIMENS COLLECTED:

1 female, no locality, March 3, 1912.
2 females, Athi River near Juja Farm, Kenya Colony, August 31, 1912.

The pied wagtail of Africa was met with only toward the end of the journey made by the Frick party, as it does not occur in the highlands of Ethiopia, where most of the field work was done. It occurs along the Nile from Assouan southward, and in eastern Africa from Gurraland and southern Somaliland through Kenya Colony, etc., to the eastern Cape Province. In the west it occurs from Liberia to southern Angola, but in the area between the Orange and the Vaal Rivers, it is replaced by typical *aguimp*.

I am not at all certain that there are two recognizable forms of this species, but in the absence of material of the nominate race, I prefer to follow Sclater's list[71] rather than to decide otherwise.

In Gurraland and southern Somaliland the breeding season appears to be over by the end of April, or at least it is past its height by then, although Erlanger[72] found a pair feeding a fledgling cuckoo, *Lampromorpha klaasi*, on June 7 in that region. In Uganda and Kenya Colony the majority of the birds nest from April to July.

MOTACILLA CLARA Sharpe

Motacilla clara SHARPE, Ibis, 1908, p. 341; nom. nov. pro *M. longicauda* Rüppell (nec Gmelin), Neue Wirbelthiere, etc., Vögel, p. 84, pl. 29, fig. 2, 1840: Simien, Ethiopia.

SPECIMENS COLLECTED:

2 unsexed, 1 male, Adis Abeba, Ethiopia, December 30, 1911–January 10, 1912.
1 male, 1 female, Aletta, Sidamo Prov., Ethiopia, March 7, 1912.
2 males, Gato River near Gardula, Ethiopia, March 30, 1912.

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[70] Journ. für Orn., 1911, p. 44.

[71] Systema avium Æthiopicarum, pt. 2, p. 336, 1930.

[72] Journ. für Orn., 1907, p. 35.

The mountain wagtail is the African counterpart of the gray wagtail of Europe (*M. cinerea*) and is its ecological representative in the former continent. It ranges from Ethiopia and Liberia south to the Cape Province, but seems to be abundant nowhere, its status being that of a widespread, but local, species. It does not appear to vary geographically, and consequently it has not been divided into racial forms.

One reason for its absence in many localities within its range is the fact that it is altitudinally somewhat restricted, the limits being approximately from 5,000 to 9,000 feet, except in extreme southern Africa, where the increase in latitude counteracts a decrease in altitude. In Zululand, for example, the species occurs even at altitudes under 2,500 feet.

The four males have wing lengths of from 82 to 88 mm; the female, 80 mm. Granvik[73] records wing lengths of 78 and 80 mm for the males and 77 and 78 mm for females.

The December and January birds are in molt; the March specimens are in fresh plumage. The birds taken at Aletta on March 7 were a mated pair, according to the collector's notes.

Granvik found a nest on Mount Elgon on June 6. It was built in a little hut and was placed on a beam a couple of meters from the ground and resembled the nest of the white wagtail, *M. alba*. Incidentally, Granvik misquotes Neumann[74] as to the altitudinal range of this bird. The figures are meters, not feet.

MOTACILLA CINEREA CINEREA Tunstall

Motacilla cinerea Tunstall, Ornithologia Britannica, p. 2, 1771: Great Britain, ex Pennant.

Specimens collected:

1 unsexed, Adis Abeba, Ethiopia, January 1, 1912.
2 males, 1 female, Arussi Plateau, 9,000–10,000 feet, Ethiopia, February 21–29, 1912.
1 female, Gato River near Gardula, Ethiopia, March 30, 1912.

One of the males from the Arussi is in summer plumage and has the throat mottled blackish and white; the other specimens are still with the pure white throats of the winter dress.

The typical race of the gray wagtail winters in Africa south to Gambia, the eastern Congo, and the Kavirondo district of southwestern Kenya Colony. In northeastern Africa it appears to be largely, though not entirely, restricted to the drainage basin of the Nile and its Abyssinian tributaries, and to be wholly lacking east of Shoa in Ethiopia, and likewise absent from the Galla-Somali countries and from northeastern Kenya Colony. It does, however, occur occasionally in British Somaliland, as Lort Phillips obtained it on Wagga Mountain.

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[73] Journ. für Orn., 1923, Sonderheft, p. 196.

[74] Journ. für Orn., 1906, p. 230.

When the fact is considered that this bird is a winter visitor in Africa, the altitudes up to which it occurs are rather higher than might be expected. Thus, Mearns found it up to 10,000 feet, Lort Phillips at 7,000 feet, and I know of no record from a locality lower than 4,000 feet. Mearns found the species living in the juniper zone in Arussiland.

BUDYTES FLAVUS FLAVUS (Linnaeus)

Motacilla flava LINNAEUS, Syst. Nat., ed. 10, p. 185, 1758: Europe, south Sweden (Hartert).

SPECIMENS COLLECTED:

1 male, Gada Bourca, Ethiopia, December 25, 1911.
1 male, 1 female, Adis Abeba, Ethiopia, December 30, 1911.
1 male, 1 female, Sadi Malka, Ethiopia, December 20, 1911–January 28, 1912.
1 female, northwest Lake Abaya, Ethiopia, March 17, 1912.
1 male, Lake Abaya, Ethiopia, March 20, 1912.
1 female, southeast Lake Abaya, Ethiopia, March 23, 1912.

The European blue-headed wagtail is a regular winter visitor in Ethiopia and Kenya Colony. In Ethiopia it appears to be less numerous, however, than *feldegg* or *cincereocapilla*, while in Kenya Colony *luteus* seems to be the commonest race. All the forms are found together in mixed flocks, often of very considerable size. The whole species appears to be rare or lacking in Somaliland, especially in Italian Somaliland.

BUDYTES FLAVUS CINEREOCAPILLA (Savi)

Motacilla cinereocapilla SAVI, Nuovo Giorn. Lett., vol. 22, p. 190, 1831; also Ornitologia Tuscana, vol. 3, p. 216, 1831: Tuscany.

SPECIMENS COLLECTED:

1 female, Aletta, Ethiopia, March 10, 1912.
1 male, Lake Abaya, Ethiopia, March 22, 1912.

These two specimens appear to belong to the Italian race of this wagtail, although they are in poor plumage for subspecific determination.

Sclater [75] writes that it winters "in Uganda and perhaps elsewhere in Africa." Nearly 20 years before, Zedlitz [76] found *cinereocapilla* in Eritrea and northern Ethiopia and collected six specimens there. He observed it during the latter part of March and found one as late as May 12 at Cheren; an unusually late date for a European migrant. Blanford [77] obtained a specimen in breeding plumage at Lake Ashangi in the beginning of April. These records appear to have been overlooked by Sclater.

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[75] Systema avium Æthiopicarum, pt. 2, p. 339, 1930.

[76] Journ. für Orn., 1911, p. 45.

[77] Observations on the geology and zoology of Abyssinia, etc., p. 381, 1870.

BUDYTES FELDEGG FELDEGG (Michahelles)

Motacilla feldegg MICHAHELLES, Isis, 1830, p. 812: Spalato, Dalmatia.

SPECIMENS COLLECTED: 1 male, mouth of Sigale River, Black Lake Abaya, Ethiopia, March 24, 1912.

Soft parts: Iris dark brown; bill black, plumbeous at base of mandible; feet and claws black.

The black-headed wagtail is a common and widespread winter visitor in Eritrea, Ethiopia, the Sudan (west through Darfur), Uganda, Kenya Colony, Somaliland, and southern Arabia.

Blanford[78] found this wagtail "common everywhere during the winter, and I suspect many remain and breed on the highlands of Abyssinia, for birds of this species were still abundant around Lake Ashangi at the beginning of May, although they had then assumed the nuptial plumage more than a month."

Zedlitz[79] found it only on the inland plateau, not in the low coastal plain, and did not see it after the last of March. He found it around the streams and river banks, a fact that may explain its absence in the arid, coastal Somali area.

Blanford's supposition as to the breeding of this bird in Ethiopia has not been confirmed or in any way supported by more recent observations.

Meinertzhagen[80] records it as a "common winter visitor to the Sudan and Abyssinia from December to May. Fairly common in Kenya Colony and Uganda in winter, especially on the Victoria Nyanza from January to early April."

The single specimen collected is in full, fresh plumage.

This specimen has a few small whitish-yellow feathers hidden among the black ones over the eyes but not enough to constitute even an indistinct superciliary stripe. It therefore can not be considered as *B. feldegg superciliaris* of Brehm. Domaniewski[81] has delved into the forms of the black-headed wagtail, which he considers is specifically distinct from *B. flavus* (in spite of what Hartert and others have concluded), and I follow him in considering the present bird typical *feldegg*. I have not seen enough material of *kaleniczenskii* to judge its validity.

Sushkin[82] apparently inclined to the opinion that *feldegg* was more than subspecifically distinct from *flavus*, as he limited himself to the gray-headed forms only, although not committing himself definitely, on this point.

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[78] Idem.

[79] Journ. für Orn., 1911, p. 45.

[80] Ibis, 1921, pp. 667–668.

[81] Ann. Zool. Mus. Polon., vol. 4, no. 2, pp. 103–107, 1925.

[82] Proc. Boston Soc. Nat. Hist., vol. 38, p. 30, 1925.

ANTHUS CAMPESTRIS CAMPESTRIS (Linnaeus)

Alauda campestris Linnaeus, Syst. Nat., ed. 10, p. 166, 1758: Europe; Sweden *apud* Hartert.

Specimens collected: 2 females, 1 unsexed, Hawash River, Ethiopia, February 8–9, 1912.

The tawny pipit winters regularly in northeastern Africa as far south as Tsavo in southern Kenya Colony, and west through Darfur to the Lake Chad region.

Blanford [83] met with it only in the highlands of northern Ethiopia, where it was "abundant in grassy meadows. *A. cervinus* appeared to replace it on cultivated land." However, it occurs lower down as well, but chiefly to the west rather than to the east, of the highland region. It may be that occasional individuals of the eastern race, *griseus*, occur in the Ethiopian-Somali lowlands, as the form has been taken at Aden, Arabia. The present three individuals are clearly of the typical race, as their size measurements show: Wing, 90–94.5; tail, 70–71; culmen, 19.0–19.5; tarsus, 25–26 mm.

One of the females is much paler than either of the other birds. It is in fresher plumage, but all three are abraded.

ANTHUS NICHOLSONI HARARENSIS Neumann

Anthus nicholsoni hararensis Neumann, Journ. für Orn., 1906, p. 233: Abu Bekr, near Harrar.

Specimens collected:
1 adult male, Gada Bourca, Ethiopia, December 25, 1911.
1 adult female, no locality, March 2, 1912(?).

Hartert,[84] Sclater,[85] and others have claimed that the correct name of the present species is *Anthus sordidus* and not *A. nicholsoni*, as Neumann [86] and van Someren [87] have concluded. However, all previous workers appear to have overlooked the fact that *Anthus sordidus* Rüppell [88] is preoccupied by *Anthus sordidus* Lesson [89] which, in turn, is a synonym of *Centrites niger* (Boddaert). The oldest name available for the group is *nicholsoni* Sharpe. The northern Ethiopian race, hitherto known as *sordidus*, is thus without a name, but inasmuch as it is said to be only doubtfully distinguishable from *hararensis*, I do not care to propose a substitute name for it. I have seen five specimens from northern Ethiopia and am of the opinion that the northern form may prove to be a distinct, darker race.

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[83] Observations on the geology and zoology of Abyssinia, etc., pp. 383–384, 1870.

[84] Nov. Zool., vol. 24, pp. 457–458, 1917.

[85] Systema avium Æthiopicarum, pt. 2, p. 341, 1930.

[86] Journ. für Orn., 1906, p. 232.

[87] Nov. Zool., vol. 29, pp. 180–181, 1922.

[88] Neue Wirbelthiere, etc., Vögel, p. 103, pl. 39, fig. 1, 1840: Simien Province.

[89] Voyage autour du monde . . . la *Coquille;* pendant les annés 1822–25, Zoologie, vol. 1, pt. 2 (livr. 15), p. 664, 1830: Near Talcahuano, province of Concepcion, Chile. Type in Paris Museum.

This race of the long-billed pipit (assuming that the form hitherto called "*sordidus*" is distinct) occurs in the south-central part of the Ethiopian highlands (northern Shoa, Adis Abeba, etc.) east to the Hawash Valley at least to the Harrar region and to northern Somaliland.

The total quantity of material available for study leaves me somewhat unconvinced as to the distinctness of "*sordidus*", *hararensis*, and *neumannianus*. It is unfortunate that the last named was described from southern Shoa rather than from central or southern Kenya Colony, as topotypes are really intermediate in nature between the northern forms and the Kenyan race.

The two specimens collected are in worn plumage. Their measurements are as follows: Wing, 96–97.5; tail, 76.5–77; culmen, 19; tarsus, 24–25.5 mm.

ANTHUS NICHOLSONI NEUMANNIANUS Collin and Hartert

Anthus nicholsoni neumannianus Collin and Hartert, Nov. Zool., vol. 34, p. 50, 1927; nom. nov. pro *A. n. longirostris* Neumann, Orn. Monatsb., vol. 13, p. 77, 1905: Gardula, southern Ethiopia.

Specimens collected:

1 adult female, Gidabo River, Ethiopia, March 17, 1912.
1 adult male, southeast of Lake Abaya, Ethiopia, March 21, 1912.
1 adult female, Bodessa, Ethiopia, May 30, 1912.
1 adult female, Turturo, Ethiopia, June 15, 1912.
1 adult female, Athi River near Juja Farm, Kenya Colony, August 31, 1912.

This race of the long-billed pipit is darker above than *hararensis*, but the difference is not great. It occurs from southern Shoa to Kenya Colony (south to Naivasha, Nakuru, Kedong, Kisumu, etc.) and to Ruanda and to Bukoba, northwestern Tanganyika Territory. In the latter two regions it intergrades with *nyassae*.

The dimensions of the present series are as follows: Male—wing, 96; tail, 77; culmen, 19; tarsus, 24 mm. Females—wings, 89–95; tail, 63–73.5; culmen, 17.5–19; tarsus, 25–27 mm.

The birds collected in March and May are in worn plumage; the June specimen is in molt; and the August bird in fresh plumage.

Sclater [90] suggests that *Anthus latistriatus* Jackson [91] is founded on a young specimen of *nyassae*, in which case Jackson's name would have to be used for the race. However, *nyassae* does not occur in the Kavirondo country, but only *neumannianus*, so if any name has to be synonymized, it would be that of the present race. Furthermore, Shelley[92] writes that Jackson's pipit probably "inhabits Southern Abyssinia as well as Kavirondo", thereby giving it the range of *neumannianus*. However, *latistriatus*, as its name implies, is a bird with distinctly streaked sides and flanks, a character not present in any plumage (as far as known) of any race of *A. nicholsoni*. Without having seen any material of Jackson's form, I can not form a definite opinion.

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[90] Systema avium Æthiopicarum, pt. 2, p. 341, 1930.

[91] Ibis, 1899, p. 628: Kavirondo.

ANTHUS RICHARDI CINNAMOMEUS Rüppell

Anthus cinnamomeus Rüppell, Neue Wirbelthiere, zu der Fauna Abyssinien gehörig, etc., Vögel, p. 103, 1840: Simien Province, Ethiopia.

Specimens collected:

1 male, 3 females, Adis Abeba, Ethiopia, December 31, 1911–January 10, 1912.
6 males, 3 females, Arussi Plateau, Ethiopia, February 14–20, 1912.

The male from Adis Abeba is smaller than any of those from Arussi Plateau and is probably wrongly sexed.

There is considerable variation in color in the present series, the Arussi birds being slightly more grayish, less rufescent above, than those from Adis Abeba. All, however, are more rufous than *lacuum* of Kenya Colony.

Meinertzhagen[93] has shown that the *rufulus* group and the *richardi* group are conspecific, and his revision is followed by more subsequent workers. Van Someren[94] has apparently missed the point, as he records *richardi* as a winter visitor in Kenya Colony, and *rufulus cinnamomeus* as a breeding bird there. Both are probably referable to *A. richardi lacuum*.

It is an open question whether *lacuum* is really distinct from *raaltenii* of South Africa, but the limited material I have been able to examine of the latter does not enable me to judge this point decisively. Therefore, for the present at least, I follow Sclater's list[95] and keep them distinct, although I am not unmindful of the fact that Neumann, Granvik, and others have united them. Gyldenstolpe[96] does not consider the point at all, but uses the name *lacuum* for his birds from the eastern Congo.

The size variations of the present series are given in table 49. The measurements agree with those given by other writers.

In the regions traversed by the Frick expedition, two races of this pipit occur, as follows:

1. *A. r. cinnamomeus:* The inland plateau of southern Eritrea and of Ethiopia south to southern Shoa and Arussi-Gallaland. Sclater

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[92] The birds of Africa, etc., vol. 2, p. 305, 1900.
[93] Ibis, 1921, p. 651.
[94] Nov. Zool., vol. 29, p. 180, 1922.
[95] Systema avium Æthiopicarum, pt. 2, p. 343, 1930.
[96] Kongl. Svenska Vet.-Akad. Handl., 1924, p. 80.

suggests that it occurs in winter in the northern part of the Anglo-Egyptian Sudan, which, if true, would indicate an altitudinal, seasonal migration.

2. *A. r. lacuum:* Kenya Colony, Uganda, northern Tanganyika Territory, Ruanda, Urundi, and the eastern Belgian Congo. This form is grayer, less rufous, than *cinnamomeus.* According to van Someren, the birds of Uganda are more rufescent than those of Kenya Colony, somewhat intermediate between *lacuum* and *cinnamomeus.* This, however, is not substantiated by a comparison of two Ruandan specimens with a series from Kenya Colony and Tanganyika Territory.

The present birds are in somewhat worn plumage.

TABLE 49.—*Measurements of 13 specimens of* Anthus richardi cinnamomeus *from Ethiopia*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Adis Abeba	Male	85.0	62.5	14.0	28.0
Arussi Plateau	do	91.0	67.0	14.0	27.5
Do	do	96.0	73.0	15.0	30.0
Do	do	91.0	68.0	15.0	28.5
Do	do	88.0	66.0	14.0	29.5
Do	do	94.0	70.0	15.0	28.5
Do	do	90.0	66.5	14.0	27.5
Do	Female	86.5	65.0	14.0	28.0
Do	do	87.0	61.0	14.0	27.0
Do	do	87.0	64.5	13.5	28.5
Adis Abeba	do	86.5	63.5	14.0	28.0
Do	do	92.0	70.0	14.0	28.0
Do	do	87.0	66.5	----------	28.0

Zedlitz[97] writes that this bird is chiefly an inhabitant of the mountains, from 2,200 meters upward, although he notes that the form is known from near Kismayu, at sea level.

Erlanger[98] found a nest of this pipit near the Hakaki River, two days' journey from Adis Abeba, on July 7. It contained four half-grown nestlings.

ANTHUS GOULDII TURNERI Meinertzhagen

Anthus gouldi turneri MEINERTZHAGEN, Bull. Brit. Orn. Club, vol. 41, p. 24, 1920: Kituni, northwestern Kenya Colony.

SPECIMENS COLLECTED: 1 male, Tertale, Ethiopia, June 10, 1912.

This specimen is in molt and neither the wings nor tail affords significant measurements. It agrees very closely with a specimen from Mitiyana, Uganda, and with another from the west shore of Lake Tanganyika.

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[97] Journ. für Orn., 1911, pp. 46–47.

[98] See Reichenow. Journ. für Orn.. 1907. pp. 37–38.

Sclater[99] does not include southern Ethiopia in the range of *turneri*, but Meinertzhagen[1] writes that "birds from southern Abyssinia and the Sudan provinces of Mongalla and Bahr el Ghazal appear to belong to this race." It is otherwise known to inhabit western Kenya Colony, Uganda, the eastern Belgian Congo (Ituri district), south to Nyasaland. In the south-central Katanga, it is replaced by a much darker form, *bohndorffi*, which is a valid race. Sclater writes that the latter is known only from the type and is probably identical with *turneri*, but in both matters he is mistaken. I have seen one specimen of *bohndorffi*, taken by Neave near the Lufupa River, and it is very different from *turneri*, being darker above and especially so below.

ANTHUS GOULDII OMOENSIS Neumann

Anthus leucophrys omoensis NEUMANN, Journ. für Orn., 1906, p. 235: Ergino Valley, between Gofa and Doko, southwestern Ethiopia.

SPECIMENS COLLECTED: 1 male, 1 female, Loco, Ethiopia, March 14, 1912.

I have not sufficient material to attempt a study of the races of this pipit, and have identified these specimens as *omoensis* partly on geographic grounds. They may not be wholly typical of that form, however. Sclater[2] considers *gouldii* and its races conspecific with *leucophrys*, but this appears to be a doubtful conclusion. In keeping the two groups separate, I follow Meinertzhagen's review,[3] which seems to be the most satisfactory one.

Though it is true that a dark race of the *leucophrys* group, such as *zenkeri*, closely approaches *gouldii*, yet the two groups are geographically coincident in parts of West Africa and must therefore be maintained as specific entities. Bannerman[4] has recorded both from southern Nigeria.

Both specimens are in worn plumage. Their dimensions are as follows: Male—wing, 99; tail, 74; culmen, 18; tarsus, 26 mm. Female—wing, 93; tail, 66; culmen, 16.5; tarsus, 26 mm.

Erlanger[5] found the closely allied race *saphiroi* nesting near Harrar from early in April until the middle of May, while in the Arussi-Gallaland he found a nest with eggs on June 21. If we judge by the extremely abraded condition of the plumage of the present birds, it would appear that they were just about finished breeding (i. e., were ready to begin the postnuptial molt), which, in turn, would indicate that the breeding season in southern Ethiopia may start earlier than Erlanger's observations suggest.

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[99] Systema avium Æthiopicarum, pt. 2, p. 344, 1930.

[1] Ibis, 1921, p. 662.

[2] Systema avium Æthiopicarum, pt. 2, p. 345, 1930.

[3] Ibis, 1921, pp. 658–663.

[4] Rev. Zool. Africaine, vol. 9, pp. 323–325, 1921.

[5] Journ. für Orn., 1907, p. 38.

ANTHUS RUFOGULARIS Brehm

Anthus rufogularis Brehm, Lehrbuch der Naturgeschichte europäischen Vögel, vol. 2, p. 963, 1824: Nubia, Egypt, and southern Europe.

Specimens collected:

1 male, Adis Abeba, Ethiopia, January 8, 1912.
1 male, Alaltu, Ethiopia, January 17, 1912.
1 male, 3 females, Arussi Plateau, Ethiopia, February 14–15, 1912.
1 male, Cofali, Ethiopia, March 2, 1912.
2 females, southeast of Lake Abaya, Ethiopia, March 22, 1912.

The European red-throated pipit is a regular and common migrant and winter visitor in Ethiopia and Kenya Colony as well as in the Sudan and Uganda. Von Heuglin found it common in various parts of Nubia and Ethiopia; many ornithologists have recorded it from Kenya Colony; and the species has been noted abundantly along the Nile from lower Egypt to Uganda.

Although the birds begin to arrive in October, the inception of the molt is usually delayed until January or February and sometimes even later. Thus, of the present series, some of the last birds taken (as well as the earliest one) are still in winter plumage, some are in molt, and some are almost finished molting. Lynes[6] found that in Darfur the birds arriving from the north in October and November were in worn plumage; "some of these began to show a few red throat feathers early in November, and the wintering juveniles evidently acquired their first summer red throats gradually during the winter, while the adults grew theirs in April and May, just before, or with, departure."

TMETOTHYLACUS TENELLUS (Cabanis)

Macronix tenellus Cabanis, Journ. für Orn., 1878, pp. 205, 220: Teita, Kenya Colony.

Specimens collected:

1 adult male, south end Lake Rudolf, Kenya Colony, July 8, 1912.
4 immature males, 2 adult females, Indunumara Mountains, Kenya Colony, July 14, 1912.
5 adult males, 5 adult females, 1 immature male, Northern Guaso Nyiro River, Kenya Colony, July 31–August 1, 1912.
2 adult females, Lekiundu River, Kenya Colony, August 5–7, 1912.

This extraordinary bird, thought by Madarász[7] entirely to contradict the currently recognized characters of the Passeriformes, is found in eastern Africa from the Pangani River, in northern Tanganyika Territory, north through Kenya Colony to the Ogaden area of Ethiopian Somaliland, and to British Somaliland.

When he redescribed this pipit as *Charadriola singularis*, Madarász was under the impression that the collector, Coloman Katona, saw the bird wading in the shallow waters of Lake Jipe, which fact, together with the unfeathered condition of the lower half of the tibiae, led him to consider it as a passerine shorebird. However, the species is now known to be a denizen of arid thornbush country, and it probably does not come near water to any extent. There is no reason to believe that it does not bathe when an opportunity presents itself, and it was probably on such an occasion that Katona got his specimen.

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[6] Ibis, 1925, p. 708.

[7] Ann. Mus. Nat. Hungar., 1904, p. 400.

The plumage of the adult male is unique among pipits in combining the general preponderance of yellow of the genus *Budytes* with the black gorget and rectricial and remigial areas of the genus *Motacilla*, while the plumage of the female and of immature males is like that of the genus *Anthus*. The genus *Tmetothylacus* has often been considered as closely related to *Macronyx*, but I can see no good reason for this. The color combination of yellow underparts with a black pectoral band is certainly not sufficient to warrant any such conclusion. If we examine the plumages of the golden pipit from a biogenetic viewpoint, it appears that *Anthus* is more primitive than *Budytes* or *Motacilla*, a conclusion that is supported by distributional evidence as well as by plumage characters.

The sequence of plumages in this species is still rather poorly understood. Taking the present series as a basis, and also utilizing the valuable notes recorded by Reichenow,[8] van Someren,[9] and others, I come to the following results:

The male goes through a sequence of three plumages; the female of two. The two sexes may therefore be considered separately.

1. *Males.*—Juvenal plumage: Upperparts, head, back, upper wing coverts, rump, and upper tail coverts fuscous medially, laterally broadly edged with pale grayish brown; rectrices fuscous, externally and internally margined with yellow, the innermost secondaries with whitish instead of yellowish borders; outermost pair of rectrices yellow, next pair yellow on the inner web, fuscous on the outer web, remainder of tail feathers fuscous; chin and upper throat white, lower throat and breast buffy with small fuscous streaks; rest of underparts buffy white, washed with yellow on the middle of the abdomen.

Immature plumage: Similar to the juvenal plumage on the upper parts, but slightly darker; chin and upper throat white with a few yellow feathers; the lower throat pale buffy white, the breast with a broad black band, not so perfectly developed as in adults; rest of underparts, wings, and tail as in adult birds.

Adult plumage: Feathers of forehead, crown, occiput, nape, upper back, inner upper wing coverts, back, and rump with fuscous-black median stripes, bordered laterally with yellowish green; upper tail coverts bright yellow; outer upper wing coverts, and the remiges bright yellow broadly tipped with black; middle pair of rectrices fuscous-black, the rest of the tail feathers bright yellow with a little black on their distal parts, the black decreasing centrifugally, there being no blackish on the two outermost pairs; underparts bright yellow, with a broad black pectoral band.

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[8] Journ. für Orn., 1907, p. 41.

[9] Nov. Zool., vol. 29, p. 182, 1922.

2. *Females.*—Juvenal plumage: Similar to that of the male.

Adult plumage: Similar to the juvenal stage but slightly darker above and with the tawny-buff on the breast more pronounced, thereby tending to obliterate the small pectoral streaks or spots present in the younger birds.

Inasmuch as this bird is not too common in collections, I give the measurements of the adults (table 50).

The specimen taken on July 8 at the south end of Lake Rudolf is in an early stage of the postnuptial molt. One of the females collected on August 1 on the Northern Guaso Nyiro River is likewise in molt. On the whole, July birds are in fresher plumage than August ones, but the difference is not great.

Van Someren has found this pipit nesting in May and July in southeastern Kenya Colony, and Erlanger[10] found nests with eggs during May in the Garre-Lewin districts of Somaliland. According to Erlanger, the nest is made of such material as dry grasses and is always placed near, but not quite on, the ground. Three to four eggs constitute a clutch. They are white with a rosy or greenish wash, much speckled and dotted with dirty clay color, and average about 20 by 15 mm in size.

TABLE 50.—*Measurements of 15 specimens of* Tmetothylacus tenellus *from Kenya Colony*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
South end of Lake Rudolf	Male	83.0		15.0	25.5
Northern Guaso Nyiro River	do	85.5	55.0	15.0	26.0
Do	do	83.0	61.0	16.5	24.0
Do	do	82.5	55.0	16.0	26.5
Do	do	80.0	54.0	15.0	26.0
Do	do	82.5	57.0	15.0	25.0
Indunumara Mountains	Female	78.0	55.5	16.0	25.5
Do	do	80.0	56.5	15.0	25.5
Northern Guaso Nyiro River	do	78.0	53.5	16.5	26.5
Do	do	77.0	56.5	16.5	26.0
Do	do	77.0	54.0	16.0	25.0
Do	do	80.0	56.0	16.5	26.5
Do	do	77.5	60.5	17.0	26.0
Lekiundu River	do	76.5		16.0	25.5
Do	do	79.0	56.0	16.0	26.0

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[10] Journ. für Orn., 1907, p. 41.

MACRONYX CROCEUS CROCEUS (Vieillot)

Alauda crocea Vieillot, Nouv. Dict. d'Hist. Nat., vol. 1, p. 365, 1816: Java!; Senegal (Swainson).

Specimens collected: 1 male, 1 female, Athi River near Juja Farm, Kenya Colony, August 31, 1912.

Gyldenstolpe[11] has given a detailed account of the variations of this longclaw, and partly as a result of his notes and partly on the basis of material examined, I separated the birds of southeastern Africa as a recognizable entity under the name *vulturnus*.[12]

Since the publication of that paper, I have seen more material, which upholds the validity of *vulturnus*, but I have come to the conclusion that *fülleborni* is a distinct species with two races, the nominate one and *ascensi*. The juvenal plumages of *M. croceus* and *M. fülleborni* are much more dissimilar than are the adult stages.

The present female is not fully adult and has the black gorget poorly developed. The male has a rather small gorget, and, inasmuch as both specimens are rather small, it appears that they are year-old birds or younger. Both are in fresh plumage.

The yellow-throated longclaw inhabits open grassy areas and, in the area covered by the Frick expedition, is not very widely distributed. It is unknown north of Tana River, and is most abundant in western Kenya Colony (Naivasha, Laikipia, Kavirondo, Elgon, Nandi districts, etc.) west of where the expedition worked. It is found up to about 7,000 feet, but the limiting factor in its altitudinal range appears to be the presence of circling bands of dense forests on the higher mountains in equatorial East Africa, which, quite naturally, act as a barrier to a savannah bird.

The breeding season is very prolonged. Nests with eggs have been found in western Kenya Colony and in Uganda from March to the end of June, and very young birds in December as well.

MACRONYX AURANTIIGULA Reichenow

Macronyx aurantiigula Reichenow, Journ. für Orn., vol. 39, p. 222, 1891: Pangani River, Tanganyika Territory.

Specimens collected: 1 female, Tharaka district, Kenya Colony, August 12, 1912.

The female is similar to the male, but with the posterior half of the superciliary stripes white instead of yellow and with a band of white running from the bill under the eye just dorsal to the black margin of the yellow throat patch. In the male this area is yellow. In size the two sexes are alike.

Of all the species of the genus *Macronyx* perhaps the least well known is *M. aurantiigula*. This form is of interest in that it serves to connect two such diverse types as *M. croceus* and *M. flavicollis*.

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[11] Kongl. Svenska Vet.-Akad. Hand., 1924, pp. 80–82.

[12] Occ. Papers Boston Soc. Nat. Hist., vol. 5, p. 263, 1930.

Hitherto *M. aurantiigula* has been recorded only from the coastal districts of East Africa from the Pangani River in northern Tanganyika Territory north to Malindi in Kenya Colony, and inland to Lake Manyara and the plains east of Mount Kilimanjaro in Tanganyika Territory and to the Athi River in Kenya Colony. Consequently, it was interesting to find that the Childs Frick expedition procured a specimen in the Tharaka district north of the Tana River and east of Mount Kenya, an extension of range of some 150 miles. Furthermore, Donaldson Smith collected another many years before on the Tana River, but this record has apparently remained unpublished. His specimen is now in the collections of the Academy of Natural Sciences of Philadelphia, to which institution I am indebted for the privilege of examining it.

The present specimen is in very fresh plumage and has the margins of the feathers of the crown and back brighter tawny, less grayish sandy, than any of a series of slightly worn examples of typical *aurantiigula.* Whether this difference is geographical or due to wear can not be decided without more material.

The present specimen is the type of *Macronyx aurantiigula suboculāris* Friedmann. At the time I described it I had only material collected and sexed by native collectors, and I confused a sexual difference with a geographic character. The subspecies is not valid.

MACRONYX FLAVICOLLIS Rüppell

Macronyx flavicollis Rüppell, Neue Wirbelthiere, zu der Fauna Abyssinien gehörig, etc., Vögel, p. 102, pl. 38, fig. 2, 1840; Simien, Ethiopia.

Specimens collected:

3 males, 3 females, 2 unsexed, Adis Abeba, Ethiopia, December 30, 1911–January 10, 1912.
1 male, 1 female, Hakaki, Ethiopia, January 15, 1912.
1 male, 1 female, Arussi Plateau, 9,000 feet, Ethiopia, February 23–28, 1912.

The Abyssinian longclaw is wholly restricted to the highlands of Ethiopia from Simien and central Ethiopia south to Kaffa, Shoa, and Arussi-Gallaland. Nicholson[13] has listed all the localities for this species known to him, from which it appears that the present birds from the juniper zone at 9,000 feet on the Arussi Plateau are not at all unusual. The altitudinal range of the species is from 4,000 to more than 10,000 feet, and the bird is commoner at the upper than the lower limit of its range. Thus, von Heuglin found it from 8,000 to 10,000 feet in the Simien, Wogara, and Begemeder regions, and Blanford never observed it below 10,000 feet.

Zedlitz[14] considers Reichenow's form *aurantiigula* as a race of *flavicollis*, but all other authors agree in considering them specifically distinct. It seems to me that it is better to keep the two as species as they are very distinct, although it is true that they are more closely related to each other than to any other members of the genus.

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[13] Mem. and Proc. Manchester Lit. and Phil. Soc., vol. 53, pt. 3, p. 5, 1909.

[14] Journ. für Orn., 1916, p. 58.

Several investigators have maintained that the sexes differ in size, the females being noticeably smaller than the males. I do not find this to hold for the present series, and therefore, if the birds are correctly sexed, the measurements (table 51) may be of interest to those whose specimens indicate some sexual dimorphism. All the present birds are in fine, fresh plumage.

There is considerable variation in color. Thus, the throat patch is light cadmium yellow in one bird, aniline yellow in another, and mars yellow in a third. Some specimens have the underparts very much whiter than others, especially around the posterolateral margin of the black gorget; some have the margins on the feathers of the upperparts paler brown than others.

Erlanger found this longclaw breeding in July and August near Adis Abeba, while Neumann obtained nestlings in February at Doko. According to Erlanger,[15] the eggs, usually three in number, are quite glossy pale greenish white abundantly flecked and scrawled with clay color.

Table 51.—*Measurements of 12 specimens of* Macronyx flavicollis *from Ethiopia*

Locality	Sex	Wing	Tail	Culmen	Tarsus	Hind claw
		Mm	*Mm*	*Mm*	*Mm*	*Mm*
Adis Abeba	Male	86.5	57.5	----------	31.5	15.0
Do	do	86.0	64.0	18.0	29.0	16.5
Do	do	95.5	66.5	17.5	32.0	18.0
Arussi Plateau	do	92.5	67.5	17.5	----------	15.0
Hakaki	do	93.0	68.0	18.5	32.0	14.5
Do	Female	89.5	60.0	15.5	31.0	15.5
Arussi Plateau	do	91.0	67.0	17.0	30.0	13.5
Adis Abeba	do	88.0	62.0	17.0	28.0	14.5
Do	do	86.5	56.5	16.0	31.5	18.0
Do	do	87.0	60.0	16.5	30.0	14.0
Do	Unsexed	92.0	63.0	17.5	31.0	15.0
Do	do	98.5	63.0	16.0	32.0	17.5

Family LANIIDAE, Shrikes

LANIUS EXCUBITOR PALLIDIROSTRIS Cassin

Lanius pallidirostris Cassin, Proc. Acad. Nat. Sci. Philadelphia, vol. 5, p. 244, 1852: "Eastern Africa."

Specimens collected: 1 male, 1 female, Hawash River, Ethiopia, February 7–8, 1912.

The subspecific identification of these two specimens is rendered somewhat uncertain by the fact that I have had very little comparative material to study. In northeastern Africa there are three possibilities: *L. e. leucopygos*, *L. e. pallidirostris*, and *L. e. aucheri*, while it is just within the limits of possibility, but hardly probable, that the southwestern Arabian race *L. e. buryi* might get over to eastern Ethiopia. Aside from the present two birds, I have seen no specimens of any of these four. Going by the descriptions and data given by Hartert,[16] we may eliminate *leucopygos* because of its small size (wings 99–102 mm, while the present birds measure 112.5 and 114.5 mm, respectively), and likewise *buryi* may be ruled out on the basis of size. This leaves *aucheri* and *pallidirostris* to be considered. The former is said to have a grayish wash on the breast, which, in the latter, is white, with or without a rosy tinge. The present specimens have a very faint pinkish buff wash on the breast, but no gray, and consequently I consider them best identified as *pallidirostris.* Both have pale bills, but this is not a subspecific character, merely a subadult one.

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[15] Journ. für Orn., 1907, p. 40.

The outer two pairs of rectrices are notoriously variable in all the forms of *Lanius excubitor*, but, on the whole, they tend to be more uniformly white, less marked with black, in *pallidirostris* than in some of the others. In the female collected by the Frick expedition the outermost are wholly white, the second pair white with a small black oval on the inner web near the base; the male has the outermost pair similarly pure white, but has lost the next pair.

Sclater and Mackworth-Praed [17] report that *L. e. elegans* breeds in the Red Sea Province of the Anglo-Egyptian Sudan. This suggests that *elegans* might occasionally wander south into eastern Ethiopia, but so far it has not been found to do so. It may be told from *pallidirostris* by its smaller size (wings, 104–107 mm).

L. e. pallidirostris breeds in Transcaspia and winters in the Upper Nile Valley, Eritrea, and southeastern Ethiopia, but it is rare (or at least has been rarely recorded) in the two last-named countries. Zedlitz [18] obtained a specimen at Asmara, Eritrea, in March, while Sclater [19] notes that in the British Museum there is a young bird from Buggali, Arussiland, collected by Degen on March 3, and that the Tring Museum has another young bird from Gallaland.

According to Brehm,[20] this bird arrives in Sennar in October and leaves in spring. It may be that Zedlitz's Eritrean bird (taken on March 8) is a migrant from Sennar on its way to its breeding grounds.

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[16] Die Vögel der paläarktischen Fauna, vol. 1, pp. 428–433, 1907.

[17] Ibis, 1918, p. 628.

[18] Journ. für Orn., 1910, p. 805.

[19] *In* Shelley, The birds of Africa, etc., vol. 5, p. 271. 1912.

[20] Journ. für Orn., 1854, p. 146.

The measurements of the two specimens are as follows: Male—Wing, 114.5; tail, 105; culmen, 19.5; tarsus, 31.5 mm. female—wing, 112.5; tail, 108; culmen, 19; tarsus, 31 mm.

LANIUS COLLARIS HUMERALIS Stanley

Lanius humeralis STANLEY, *in* Salt, Travels in Abyssinia . . ., Appendix, p. li [=51], no. 4, 1814: Chelicut, Ethiopia.

SPECIMENS COLLECTED:

1 female, Harrar, Ethiopia, November 24, 1911.
1 female, Gada Bourca, Ethiopia, December 26, 1911.
1 female, Adis Abeba, Ethiopia, January 9, 1912.
1 male, Arussi Plateau, Ethiopia, February 24, 1912.
1 male, near Aletta, Sidamo, Ethiopia, March 6, 1912.
1 male, Gidabo River, Ethiopia, March 16, 1912.
1 male, 1 female, Gato River near Gardula, Ethiopia, April 9, 1912.
1 male, Kormali, Ethiopia, May 18, 1912.
1 male, Kilindini, Meru district, Kenya Colony, August 11, 1912.
5 adult males, 4 immature males, 2 adult females, Escarpment, Kenya Colony, September 4–9, 1912.

In the study of the variations of this shrike, I have examined nearly 100 specimens representing the following recognized races: *collaris*, *smithi*, *humeralis*, *congicus*, and *subcoronatus*. I have not seen any material of the south Tanganyikan race *marwitzi*. I have also not seen enough Cameroon material to settle the validity of *cameroonensis*, but I accept Bannerman's pronouncement [21] that it is a synonym of *smithi*. Roberts [22] apparently considers *pyrrhostictus* a valid form, differing from *humeralis* in being larger than the latter, but this seems somewhat doubtful. A specimen of *humeralis* from "Umzila's Kingdom" (= Gazaland) is no larger than others from Ethiopia, Kenya Colony, or Tanganyika Territory. Roberts records *pyrrhostictus* from the high veld region of the Transvaal, an area that is certainly different ecologically from the Gazaland district, but, as far as I know, no other student recognizes *pyrrhostictus*.

The revision given by Bannerman (loc. cit.) is correct as far as my material goes, and there is no need to repeat it here. Only one race other than *humeralis* occurs anywhere near northeastern Africa—*smithi*, which gets to western Uganda and intergrades with the former in that country. Consequently, some Ugandan specimens are difficult to identify to one or the other race, but typical *smithi* has more black on the outermost pair of rectrices than does *humeralis*.

Reichenow's supposed form *uropygialis* [23] is not separable from *humeralis*. This race was said to differ from *humeralis* in having the anterior, shorter upper tail coverts pure white, forming a white transverse band. The present series amply demonstrates that this character is very inconstant and that it can not be relied upon as a systematic character.

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[21] Rev. Zool. Africaine, vol. 9, p. 350, 1921.

[22] Ann. Transvaal Mus., vol. 8, pp. 245, 249, 1922.

[23] Journ. für Orn., 1905, p. 560; "Ostafrika von Uganda bis zum Niassasee."

Sassi[24] has confused the issue somewhat by supposing his birds to be *uropygialis* when they are probably *congicus*. The characters of *congicus* are those of the more sooty dorsal coloration, rather than the rectrix pattern, a fact that Sassi appears to have overlooked.

Inasmuch as not a few birds occurring in both Ethiopia and in tropical East Africa differ in size from the Equator northward, it may be stated that while Ethiopian birds average slightly larger than those from Kenya Colony, the difference is so small and the overlapping so extensive that it is not possible to divide the race into two size groups. Thus, 11 male birds from Ethiopia and very high altitudes in Kenya Colony (Escarpment, etc.) have wings measuring from 91 to 101 mm, the average being 94.4 m; 14 males from southern Kenya Colony have wings of from 87 to 96 mm in length, averaging 91.5 mm. If the two groups were separated, the average specimen of the southern aggregate would be indistinguishable from the northern form. It follows, then, that such splitting would be impossible. The size variations of the present series are given in table 52.

The present subspecies occurs from Eritrea, Bogosland, all of Ethiopia, Kenya Colony (except the northern coastal strip), eastern and central Uganda, all of Tanganyika Territory (not including Ruanda), Mozambique, Nyasaland, eastern Rhodesia, Swaziland, Zululand, and Natal. It does not appear to have been recorded from southern Somaliland, and but a few times from British Somaliland. The only "Somali" record given in Shelley's Birds of Africa[25] is not a Somali record at all, but one from Kikuyu, Kenya Colony.

Its absence from the low, arid Somali region corroborates Blanford's observations[26] that it is very common in the highlands of Eritrea and rare in the lowlands of the Anseba Valley. Neumann[27] found it only in the middle and high altitudes up to 10,000 feet in Shoa, and noted its absence in the deep, hot valleys. He found it chiefly in the bushy growth around the edges of the forests, and also in more open country on the mountainsides. Erlanger[28] found it abundant in Ennia and Arussi Gallaland, where it was often seen in the cultivated plots of the natives.

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[24] Ann. naturhist. Hofmus., Wien, 1925, p. 22.

[25] Vol. 5, pt. 2, p. 249, 1912.

[26] Observations on the geology and zoology of Abyssinia, etc., p. 338, 1870.

[27] Journ. für Orn., 1905, p. 227.

[28] Ibid., p. 700.

The young birds have the top of the head, occiput, and nape brownish gray barred with black; the back more brownish, less grayish, also narrowly barred with black; the upper wing coverts pale rufous-tawny with concentric black lines; the remiges and the rectrices fuscous, edged with tawny-rufous; the scapulars white barred with black; the underparts white tinged with buff and lightly barred with fuscous on the breast, sides, and flanks.

The male collected at Kormali on May 18 had nesting material in its bill when shot. The nest was in a bush against the trunk of a large tree. Neumann recorded the breeding season in Shoa and Djamdjam as February to April, and Erlanger found nests in the last part of March and early in April near Harrar. The date recorded by Mearns is therefore an extension of the known reproductive season.

TABLE 52.—*Measurements of 17 specimens of* Lanius collaris humeralis

Locality	Sex	Wing	Tail	Culmen	Tarsus
ETHIOPIA:		*Mm*	*Mm*	*Mm*	*Mm*
Arussi Plateau	Male	101.0	131.0	14.0	24.5
Near Aletta	do	93.0	116.0	14.5	23.5
Gidabo River	do	94.0	122.5	15.0	24.0
Gato River	do	93.0	113.0	14.5	25.5
Kormali	do	91.0	113.5	16.0	23.0
KENYA COLONY:					
Kilindini, near Meru	do	92.0	111.5	15.5	23.0
Escarpment	do	95.0	122.0	15.5	24.5
Do	do	95.0	124.5	16.0	25.0
Do	do	95.0	128.0	16.5	26.0
Do	do	92.0	122.0	15.5	25.0
Do	do	98.0	126.5	16.0	24.0
ETHIOPIA:					
Harrar	Female	95.0	118.0	14.0	22.5
Gada Bourca	do	93.0	118.0	14.5	23.5
Adis Abeba	do	95.0	121.0	14.5	22.5
Gato River	do	88.0	105.0	16.0	23.5
KENYA COLONY:					
Escarpment	do	89.0	95.0	15.0	24.5
Do	do	89.0	122.0	15.0	25.0

LANIUS SOMALICUS SOMALICUS Hartlaub

Lanius somalicus HARTLAUB, Ibis, 1859, p. 342: Bender Gam, Red Sea.

SPECIMENS COLLECTED:

1 male, 1 female, Dire Daoua, Ethiopia, December 19–23, 1911.
1 male, 2 females, Hawash River, Ethiopia, February 5–8, 1912.

Lanius antinorii Salvadori is a synonym.

The Somali fiscal shrike occurs from the Danakil country through Somaliland and the southern half of Ethiopia (the Hawash, Webi, Galla, and Shoan areas) to northeastern Uganda (Turkwell country) and the Rendile country of Kenya Colony, and Jubaland.

Neumann[29] described a southwestern race, *mauritii*, based on a single specimen from Karoli Mountains, southeast of Lake Rudolf (not western Somaliland as often stated). This form is said to differ from typical *somalicus* in having the black of the head and mantle sharply demarcated from the gray of the back; in having the axillars grayish, not black; and in having the rump and upper tail coverts pure white. Neumann assumed that the specimens taken by Donaldson Smith at Lake Stefanie and Gorili probably belonged to this race. Sclater[30] examined the Gorili specimen and was unable to distinguish it from typical Somaliland birds. The next author to deal with this shrike was Zedlitz,[31] who recognized the two races. Hartert[32] writes of the type of *mauritii* that "it was daring to describe this form from one specimen, and it is desirable to have a series to confirm its validity, but the differences pointed out by Neumann are obvious, so that the new subspecies appears to be very distinct." Van Someren[33] obtained specimens from Meuressi on the upper part of the Turkwell River and found them to agree exactly with Neumann's type, "except that the black of the head is not sharply differentiated from the grey of the mantle. The general coloration is like *F. somalicus*, but in this form the rump and upper tail coverts are white and the under wing-coverts dark ashy grey, not jet black. My specimens are in full clean plumage."

I have seen no material of *mauritii* and therefore do not care to synonymize it with *somalicus*, although the present series of the latter suggests that the characters of *mauritii* are sexual. Van Someren's skins were made by native collectors, and their sexing may be therefore occasionally none too reliable. Of the present five birds sexed by Doctor Mearns, the axillars are jet black in the two males, brownish ashy gray in the three females. The black of the head and mantle is more sharply defined in the two males than in the three females. Inasmuch as van Someren's birds had grayish axillars and had the black of the mantle not very abruptly defined, I suggest that his birds were females. The character of the color of the rump and upper tail coverts, as far as I can judge by the present series, depends upon feather wear. The rump is practically pure white in *somalicus* as in *mauritii*, but the upper tail coverts in the former are pale dull gray. When fresh, however, these feathers are laterally and terminally margined with white, and since their median grayish areas are hidden by the overlying, more anterior feathers, they may on casual inspection appear to be white. If *mauritii* has these feathers wholly white, it may be a valid subspecies, but, at any rate, its range is wholly restricted to the country west and southeast of Lake Rudolf, as the Gorili bird appears to be typical *somalicus*.

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[29] Journ. für Orn., 1907, p. 595.

[30] *In* Shelley, The birds of Africa, vol. 5, p. 260, 1912.

[31] Journ. für Orn., 1915, p. 67.

[32] Nov. Zool., vol. 27, p. 452, 1920.

[33] Nov. Zool., vol. 29, p. 122. 1922.

Neumann gives the wing length of the type of *mauritii* as 105 mm. Size can hardly be used as a subspecific character because of the great extent of individual variation. Thus, the two males have the following dimensions: Wing, 99–108; tail, 94–106; culmen, 15–16; tarsus, 26.5–27 mm. The three females: Wing, 95.5; 101, 103; tail, 93.5, 96, 99; culmen, 16; tarsus, 26–27 mm.

Sclater[34] states that in the immature plumage the remiges, with the exception of the innermost one, are blackish with the same distribution of white as in the adult. The females collected are all in a late stage of the molt, and in two of them the old remiges are fuscous-brown, not black. The inference is that the fuscous ones are of the immature plumage.

Sclater has shown, to my satisfaction at least, that Hartlaub's name *somalicus* is identifiable, and therefore available for this shrike, and as it antedates *antinorii* it must be used instead of the latter. I notice that as late as 1920 Hartert continued to use *antinorii*.

Erlanger[35] found this bird to be very numerous in northern Somaliland, where it lives in the barren steppe country of the lowlands. Sclater, paraphrasing Erlanger's notes, writes that the latter "found it in great abundance in northern Somaliland, where it was apparently arriving from the Abyssinian highlands in January and February." What Erlanger wrote, however, was merely that "as soon as we came to the outliers of the Abyssinian mountains, this bird disappeared" (translation mine, the original being "Sobald wir die Ausläufer der abessinischen Gebirge erreichten, hörte sein Vorkommen auf"). The fact of the matter is that this shrike does not occur in the highlands at all, and its range occupies the low country east and south of the Ethiopian inland plateau and mountain ranges. Furthermore, inasmuch as Erlanger found nests with eggs in northern Somaliland on January 24, the species could hardly have been just "arriving from the Abyssinian highlands." As far as known, the bird is nonmigratory. A number of writers, impressed by the apparent close similarity between *somalicus* and *dorsalis*, and therefore wishing to consider them conspecific, have relied on a hypothetical migratory movement to account for the fact that specimens of both have often been taken in the same or near-by places, but, as Zedlitz has shown,[36] this would imply that *dorsalis* "winters" to the north of its breeding range, and *somalicus* to the south, a condition that, in a limited area from 5° to 10° north of the Equator, is hardly likely. If the birds were equatorial, such a condition might be possible, but well to the north or south of the Equator no such case is known.

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[34] In Shelley, The Birds of Africa, vol. 5, p. 259, 1912.

[35] Journ. für Orn., 1905, p. 701.

[36] Journ. für Orn., 1915, p. 66.

LANIUS DORSALIS Cabanis

Lanius (*Fiscus*) *dorsalis* Cabanis, Journ. für Orn., 1878, pp. 205, 225: Ndi, Kenya Colony.

Specimens collected:

1 adult male, Tertale, Ethiopia, June 10, 1912.
1 adult male, Mar Mora, Ethiopia, June 14, 1912.
1 adult female, 18 miles south of Malele, Kenya Colony, July 28, 1912.

The saddled fiscal shrike ranges from northeastern Tanganyika Territory (Usambara and Kilimanjaro districts, north through Kenya Colony (Teita to Sotik districts) to the Suk and Turkwell country and thence to the Rendile country, Lake Stefanie, and extreme southern Shoa, while along the coastal belt it occurs north through the Somali regions to the Haud and northern Somaliland.

Zedlitz[37] has investigated the distributional and nomenclatural problem presented by *L. dorsalis* and what he refers to as *L. antinorii* (which is the same as *L. somalicus* of the present paper) and has shown very well that while the two species are very similar, they are quite distinct and occur together in much of their range. For one thing, the sexes are similar in *somalicus*, while in *dorsalis* the female has a mahogany brown spot on the sides which the male lacks. Those who hold that *Fiscus* and *Lanius* are recognizable generic groups would, to be consistent, have to put *somalicus* in the latter and *dorsalis* in the former genus. Sclater[38] separates *Fiscus* and *Lanius* because in the former "the sexes may be generally easily distinguished by the colouring of the flanks", but keeps *somalicus* in *Fiscus*, although he admits that it has no sexual plumage dimorphism. In my opinion there is little to be gained in keeping *Fiscus* separate from *Lanius;* it does not appear to be a natural group, and is not even a subgenus. Its only characters are those of color, and, as in the present case of *dorsalis* and *somalicus*, this character can not be used.

This species may be easily told from *somalicus* by the fact that the secondaries are entirely black in *dorsalis* and are very broadly tipped with white in *somalicus*.

The two specimens from Ethiopia appear to be the first ones recorded from that political area, although the species had previously been taken to the south and east of it. The chances are that *dorsalis* also occurs in southern Gallaland as well.

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[37] Journ. für Orn., 1915, pp. 64–67.

[38] *In* Shelley, The birds of Africa, vol. 5, p. 231, 1912.

These two birds are in molt; the specimen from south of Malele, taken some 6 or 7 weeks later, is in worn plumage but has not begun to molt. The two males have the following dimensions: Wing, 103–104; tail 90, 90; culmen, 17.5–18, tarsus, 28–28.5 mm. The female: Wing, 94.5; tail, 84.5; culmen broken; tarsus, 26 mm. It may be that longer series will show northern birds to be constantly larger than southern ones, but with the meagre material available I cannot determine this point. A southern male in fresh plumage (from the Sotik district) is smaller than either of the two Ethiopian birds (wing, 100; tail, 92.5; culmen, 16; tarsus, 16 mm).

Nothing has been recorded of the breeding habits or season of this shrike. It appears to be somewhat migratory, as Erlanger[39] witnessed a great movement of these birds on the Juba River from Kismayu to the Garre-Lewin country during May, June, and the first half of July. This, together with the fact that the present June specimens are in molt, suggests that this movement was a postnuptial and not a prenuptial migration. The molt affects the rectrices and remiges, and in no shrike (at least of the genus *Lanius*) is there a prenuptial molt that extends beyond a few of the body feathers.

In his field notes Doctor Mearns made a number of entries of a "stout shrike, gray back, first seen at Tertale," which, by elimination and by the fact that he definitely refers this description to the Tertale specimen, seem to apply to *Lanius dorsalis*. Inasmuch as relatively few records exist for northern Kenya Colony, these observations are of very definite value even though their identification is not so exact and certain as might be desired. At the Chaffa villages, just north of the Ethiopian-Kenyan boundary, June 23–25, 24 birds were noted; at Hor, in Kenya Colony, June 26–30, 4 were seen; at a dry river 18 miles south of Hor, July 1–2, 4 birds; Dussia, July 3–4, 2 seen; east of Lake Rudolf and at the south end of the lake, July 5–8, 4 birds; southeast of Lake Rudolf, July 9–10, 4 noted; plains north of Endoto Mountains, July 19–20, 2 birds; Malele and country south to the Northern Guaso Nyiro River, July 27–30, 22 birds; Northern Guaso Nyiro River, July 31–August 3, 14 seen; Lekiundu River, August 4–8, 6 birds observed.

Recently, van Someren[39a] has recorded this shrike from a number of northern Kenya localities—Juba River at Serenli and Jebeir; Kulal, Isiola; Northern Guaso Nyiro; Matthews Range; Ngombe Crater; and Kismayu.

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[39] Journ. für Orn., 1905, p. 701.

[39a] Nov. Zool., vol. 37, p. 312, 1932.

LANIUS CABANISI Hartert

Lanius cabanisi Hartert, Nov. Zool., vol. 13, p. 404, 1906: Mombasa.

Specimens collected:

1 adult male, Tana River, camp no. 5, Kenya Colony, August 19, 1912.
1 immature male, 1 adult female, junction of Tana and Thika Rivers, Kenya Colony, August 23, 1912.

This shrike is the eastern counterpart of *L. excubitorius* and ranges from southern Italian Somaliland south through Kenya Colony east of the Rift Valley to northeastern Tanganyika Territory (to Dar es Salaam, Morogoro, and Kilosa).

As Schiebel has shown,[40] this species is phylogenetically closely related to *excubitorius*, but as it is so very distinct from the latter in color, it seems better to use a binomial for the present bird.

This species lives in the thorny scrub of the relatively low plains of coastal and subcoastal eastern Africa, getting inland as far as Nairobi, but chiefly confined to the area known zoogeographically as the southern extension of the Somali region. Inasmuch as the members of the Frick expedition did not enter this faunal area until near the end of their journey, only a few specimens were procured—at the Tana River, while others were noted on the Athi River as well.

The immature bird is molting into adult plumage. The molt is farthest advanced on the head and nape and underparts, least so on the upper back, wings, and tail. The adult male is also in molt; the female is in fresh plumage.

The breeding season is indicated by the reports of nests in northeastern Tanganyika Territory late in January, in the Teita district in September, and in southern Somaliland in May and June.

LANIUS EXCUBITORIUS INTERCEDENS Neumann

Figure 16

Lanius excubitorius intercedens Neumann, Journ. für Orn., 1905, p. 228: Hawash, Ethiopia.

Specimens collected:

3 males, Lake Abaya, Ethiopia, March 5–20, 1912.
1 female, Gidabo River, Ethiopia, March 18, 1912.
1 "male" [=female], Black Lake Abaya, Ethiopia, March 23, 1912.
1 male, 3 females, Gato River near Gardula, Ethiopia, April 8–18, 1912.
1 male, no data.

The African great gray shrike occurs throughout eastern Africa from the north end of Lake Nyasa north through Tanganyika Territory, Kenya Colony, and Uganda, to Ethiopia and the Sudan, west in the latter country to Lake Chad and northeastern Northern Nigeria. Throughout its range it has become differentiated into four races.

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[40] Journ. für Orn., 1906, pp. 174–179, 200.

The nomenclature of two of these is somewhat confusing, as it has resulted in an unfortunate and erroneous transposition of names that renders the literature somewhat difficult.

Prévost and des Murs[41] described *Lanius excubitorius* from "Nubia and Abyssinia." In 1905 Neumann described *intercedens* from the Hawash region under the assumption that birds from the White Nile were typical *excubitorius*. However, in 1912 Sclater[42] claimed that Abyssinia was the type locality of *excubitorius* and that consequently *intercedens* was a pure synonym of that name, and he described the White Nile birds as a distinct race, *princeps* Cabanis. All workers on African birds followed Sclater until very recently, when Neumann[43] once more investigated the systematics, and this time the nomenclature, of this shrike. He notes that Sclater's citation of the type locality of *excubitorius* as "Abyssinia" is only partly correct, and says:

> * * * as Prevost et des Murs did not describe it from "Abyssinia" but from "Nubia and Abyssinia," adding, that the types were not collected by Lefebvre, but sent to the Paris Museum by Mons. d'Arnaud. Now, everyone who has studied the history of the ornithological exploration of Africa knows that d'Arnaud never collected in what is now called Abyssinia, but only on the White Nile. He was one of three French elephant-hunters and ivory-traders—d'Arnaud, de Malzac, and Burn-Rollet, who often went up the White Nile * * * collecting zoological specimens. * * * In fact, the province where d'Arnaud and Werne, who sent the type of *L. princeps* to the Berlin Museum, collected is practically the same, and the types of *L. excubitorius* and *L. princeps* might have been shot on the same tree. There is no race of *L. excubitorius* in northern Abyssinia and the Blue Nile region. * * * Rüppell did not know the bird at all, and Heuglin mentions the species only from the eastern Sudan. It was not till Antinori founded the Italian zoological station of Let Marefia near Ankober in the Hawash region in 1882 that a race of *L. excubitorius* was found there and that is * * * *L. e. intercedens.*

It therefore follows that *princeps* is a synonym of *excubitorius*, while the Ethiopian and west Kenyan records of *excubitorius* really refer to *intercedens.*

The subspecies of this shrike are outlined as follows:

1. *L. e. excubitorius:* The Upper White Nile, Lado Enclave, and Bahr el Ghazal districts of the Sudan west to Darfur, and south to Uganda and the eastern Ituri district of the Belgian Congo (Ruwenzori); migrates in great numbers to Kenya Colony, especially to the Rift Valley (Lakes Nakuru and Naivasha), where, however, it does not breed. This race is rather small (wings, 105–115 mm).

2. *L. e. intercedens:* Ethiopia from the Hawash region and Ankober south through Shoa to the Omo district and through northwestern Uganda to the Elgon and Kavirondo countries in Kenya Colony.

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[41] *In* Lefebvre, Voyage en Abyssinie, etc., pt. 4, pp. 99, 170, pl. 8, 1850.

[42] *In* Shelley, The birds of Africa, vol. 5, p. 265, 1912.

[43] Ibis, 1927, pp. 506–508.

Not known from Somaliland or southern Gallaland. This form is larger than the nominate race (wings, 116–130 mm).

3. *L. e. böhmi:* Tanganyika Territory, north through the Kivu district and Ruanda to Ankole and Masaka districts, southwestern Uganda, to the Buddu Kingdom, south-central Uganda. In the eastern Ituri district of the Congo (Beni) this form appears to intergrade with *excubitorius.* In size this subspecies is intermediate between *excubitorius* and *intercedens* (wings, 115–125 mm) and differs from both in being darker above, less pure grayish, more earthy gray.

4. *L. e. tschadensis:* Northwestern Northern Nigeria and northern Cameroon to Lake Chad and to western Darfur, in the eastern part of which province of the Sudan it intergrades with *excubitorius.* This form is very similar to *intercedens* but slightly paler above, especially on the forehead and crown. Of this form I have seen no material and therefore can not judge its validity. Neumann admits that "the difference between *tschadensis* and the race from the White Nile * * * is very slight, and I should have hesitated naming it, if it had not come from the limit of the range and been still somewhat paler than the race from the White Nile and eastern Sudan."

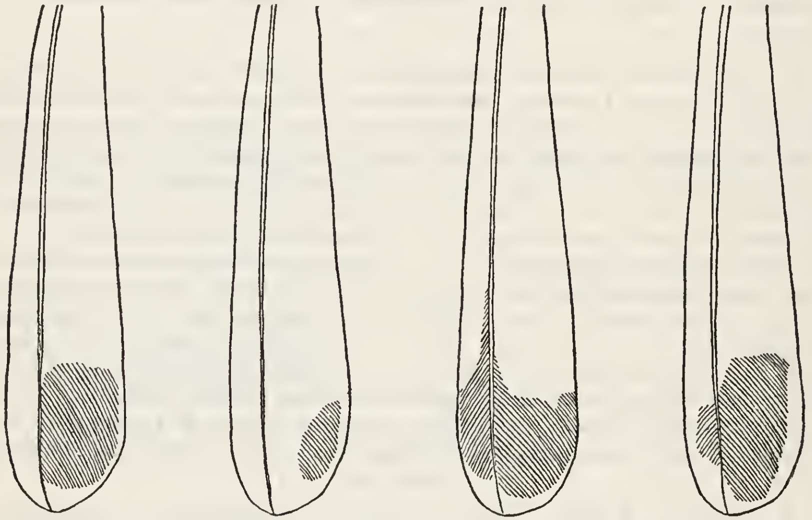

FIGURE 16.—Right outermost rectrix of *Lanius excubitorius intercedens* showing variation.

All the 10 birds listed above are in worn plumage. The extent and shape of the black subterminal mark on the outermost rectrices are very variable. A few of them are indicated in the diagram (fig. 16). There seems to be no correlation between this variation and sex or age. The size variations are shown in table 53.

This shrike lives in the thorny scrub of the semiarid acacia savannahs, where it goes about in small bands of from 5 to 15 individuals, except in the breeding season when the flocks disband and the birds pair off.

On April 8 at Gato River near Gardula, Mearns found a nest of this bird with two eggs. The nest was a loosely constructed affair of small sticks or twigs. One egg was pipped, with the young ready to emerge. The other egg measured 25 by 18.5 mm. The ground color was olive-buff, with rounded spots and specks of dark brown only on the large end, and mostly forming a circle near that end, with paler underlying spots. The female bird was sitting very closely when approached, and it was only when Doctor Mearns came very near that she left the nest. Both parent birds were collected, as well as the nest and eggs.

Apparently the eggs of this shrike are rather variable, or are different in the different subspecies, for van Someren[44] describes the eggs of *L. e. excubitorius* in Uganda as "creamy pink with red-brown spots and greyish underlying markings, all towards the larger end."

Besides the actual specimens collected Mearns noted this shrike as follows: Gidabo River, March 15–17, 10 seen; Abaya Lakes, March 18–26, 250; between the Abaya Lakes and Gardula, March 26–29, 20 birds; Gato River near Gardula, March 29–May 17, 500 noted; Anole village, May 18, 2 seen.

TABLE 53.—*Measurements of 10 specimens of* Lanius excubitorius intercedens *from Ethiopia*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Lake Abaya	Male	120.0	138.0	19.0	29.0
Do	do	126.0	149.0	17.5	30.0
Do	do	121.0	145.0	19.0	30.0
Black Lake Abaya	do	116.0	139.0	18.0	29.0
No locality	do	119.0	134.0	17.5	29.5
Gato River	do	116.0	136.0	17.5	30.0
Do	Female	121.0	141.0	16.5	29.0
Do	do	117.0	140.0	16.5	30.5
Do	do	119.0	138.0	16.5	30.0
Gidabo River	do	122.0	143.0	17.5	30.0

LANIUS SENATOR NILOTICUS (Bonaparte)

Enneoctonus niloticus BONAPARTE, Rev. Mag. Zool., 1853, p. 439: White Nile.

SPECIMENS COLLECTED:

1 female, Chobi, Ethiopia, December 23, 1911.
1 male, 1 female, Hawash River, Ethiopia, February 12, 1912.

The woodchat shrike is a wide-ranging palearctic species that occurs in Africa only as a migrant and winter visitor. It contains three races, as follows:

1. *L. s. senator:* This form has the central pair of rectrices black to the base and has the primaries white basally. Breeding range—

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[44] Ibis, 1916, p. 395.

the Mediterranean countries from Spain to the Caucasus and Asia Minor (Turkey and Mesopotamia). Winter quarters—western Africa from Senegal to the Gold Coast and Northern Nigeria east to the western slopes of the divide range in Darfur. One record for the Bahr el Ghazal.[45] There is also a record from the Mabira Forest, western Uganda,[46] but I am inclined to doubt if it is correct, as no mention is made of *niloticus*, the form that normally occurs there.

2. *L. s. badius:* Characters—like *senator* but with no white on the primaries. Breeding range—Balearic Islands, Corsica, Sardinia and Capraia, and near Lazio (Italy), according to the authors of "A Practical Handbook of British Birds" (vol. 1, p. 272). Winter quarters—western Africa; Gold Coast and Nigeria. One record for Eritrea.[47]

3. *L. s. niloticus:* Characters—easily told from the other two races by virtue of the fact that it has the middle pair of rectrices white basally. Breeding range—Palestine to southern Persia. Winter quarters—northeastern Africa generally, but particularly the drainage basin of the Nile and its tributaries, south through Uganda, where, however, it is less numerous than in the Sudan, to Mount Elgon. One record for Kenya Colony—a pair collected in the Maragoli Hills by Meinertzhagen.[48] It also occurs in the Somali lowlands.

The present race does not occur to any extent in the highlands and is therefore scarce in parts of Ethiopia, the majority of records being from the lower areas adjacent to Somaliland and Eritrea. I know of no records in Shoa west or southwest of Gada Bourca on the Hawash River, where Lovat shot a specimen. Mearns noted the woodchat shrike along the Hawash River from Sadi Malka to Gada Bourca and found it abundant in cultivated fields, from January 26 to February 13. When he left the Hawash basin for the highlands of Shoa and Arussiland, he left this bird behind him. Donaldson Smith obtained specimens near Lake Rudolf,[49] which are the only ones I know of from directly south of the Ethiopian highlands.

This bird molts in its winter quarters and is ordinarily finished molting by the first few days in February, when some individuals start northward on their return journeys. Others linger a little, but by March the migration is well under way. Heuglin found it to leave in April. Blanford,[50] strangely enough, met this bird but once, and then in the highlands at 8,000 feet. Sclater records this specimen and also another "collected by Jesse at Ambra in August. As this is quite a young bird, it may quite well be that this species breeds in the Abyssinian highlands." Reichenow[51] in treating of this form (under the name *rufus* Gmelin) gives its range as "Südwestliches Asien, Nordostafrika, hier anscheinend Standvogel:" etc. There is no real evidence, however, to support the contention that this shrike nests anywhere in northeastern Africa.

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[45] Sclater and Mackworth-Praed, Ibis, 1918, p. 629.

[46] Van Someren, Ibis, 1916, p. 396.

[47] Angelini, Boll. Soc. Ital., vol. 3, pp. 161–162, 1916.

[48] Ibis, 1921, p. 668.

[49] Cf. Sclater, *in* Shelley, The birds of Africa, vol. 5, p. 289, 1912.

[50] Observations on the geology and zoology of Abyssinia, p. 340, 1870.

LANIUS CRISTATUS PHOENICUROIDES Severzow

Lanius phoenicuroides Severzow, Journ. für Orn., 1873, p. 347, *nom. nud.;* Neumann, Journ. für Orn., 1905, p. 229; Shoa.

Specimens collected: 1 adult female, Gato River near Gardula, Ethiopia, April 17, 1912.

This bird is *phoenicuroides* and not *isabellinus*, or else is a very dark specimen of the latter race. The identification is supported by the fact that *phoenicuroides* is commoner in northeastern Africa than is *isabellinus*, although both forms are known to winter there.

This shrike breeds from Transcaspia to Persia, Turkestan, and Afghanistan, and winters in southern Arabia, Ethiopia, Eritrea, Somaliland, Kenya Colony, and to Uganda and the adjacent southern part of the Sudan. In most of the Sudan (Red Sea, Berber, White Nile, and Upper Nile Provinces) the pale race *isabellinus* is the common form. Apparently the latter migrates down the Nile Valley, while *phoenicuroides* follows the Red Sea coastline. It is therefore rather puzzling that Zedlitz[51a] records only *isabellinus* from southern Somaliland. Of course, both forms mix to some extent during the winter; thus, van Someren[52] obtained both in Kenya Colony, and Zedlitz[53] procured both in Eritrea and extreme northern Ethiopia. According to Neumann,[54] *isabellinus* is a resident breeding bird in Arabia, which would account for its getting to Somaliland.

The present specimen is in new, fresh plumage. It was taken on what appears to be a rather late date for southern Shoa.

LANIARIUS FUNEBRIS FUNEBRIS (Hartlaub)

Dryoscopus funebris Hartlaub, Proc. Zool. Soc. London, 1863, p. 105: Maninga, Unyamwesi district, Tanganyika Territory.

Specimens collected:

4 males, 1 female, Dire Daoua, Ethiopia, December 8–22, 1911.
1 female, Errer River, Ethiopia, December 13, 1911.
1 male, Sadi Malka, Ethiopia, January 29, 1912.

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[51] Die Vögel Afrikas, vol. 2, p. 627, 1903.
[51a] Journ. für Orn., 1915, p. 67.
[52] Nov. Zool., vol. 29, p. 124, 1922.
[53] Journ. für Orn., 1910, p. 806.
[54] Journ. für Orn., 1905, p. 229.

1 male, Iron Bridge, Hawash River, Ethiopia, February 5, 1912.
1 male, Hawash River, Ethiopia, February 12, 1912.
1 male, 1 female, Serre, Ethiopia, February 13, 1912.
1 immature male, Black Lake Abaya, Ethiopia, March 25, 1912.
1 male, near Gardula, Ethiopia, March 30, 1912.
9 males, 9 females, Gato River near Gardula, Ethiopia, March 31–May 11, 1912.
1 immature female, Bodessa, Ethiopia, May 23, 1912.
1 male, Bodessa, Ethiopia, May 30, 1912.
1 female, Sagon River, Ethiopia, June 4, 1912.
1 female, Mar Mora, Ethiopia, June 14, 1912.
1 immature male, Malata, Ethiopia, June 22, 1912.
2 females, Endoto Mountains, Kenya Colony, July 21, 1912.
1 adult female, 1 immature female, 18 miles south of Malele, Kenya Colony, July 29, 1912.
1 immature male, Tharaka District, Kenya Colony, August 12, 1912.

Soft parts: Iris dark brown; bill, feet, and claws black.

I have examined 74 specimens of this species in the present study and have come to the conclusion that there are three subspecific forms, all of which, while recognizable, are rather poorly defined. In other words, the slight differences in size and color are appreciable only in series. Furthermore, as Reichenow [55] pointed out, not only is there extensive individual variation to be taken into consideration, but also females are usually smaller and paler than males from the same locality. I recognize three forms, as follows:

1. *L. f. funebris:* Eastern Africa from the Nyasa–Tanganyika Plateau north through the interior of Tanganyika Territory and of Kenya Colony to eastern Uganda and to southern and central Ethiopia (Shoa northeast to the Hawash Basin). This is the darkest of the three races and it is also large in size (although not larger than *atrocoeruleus*); wing, in adult males, 85–97 mm (very rarely 81 mm), in adult females 81–93 mm. Of this race, the following are synonyms: *Laniarius bergeri* Reichenow [56] and *L. funebris rothschildi* Neumann.[57]

Zedlitz [58] considers *rothschildi* a valid form, although he admits that its status is none too secure. Hartert,[59] in his comments on the avian types at Tring, considers it valid also, but the fact remains that no worker who had a really extensive series to study has been able to uphold the supposed Ethiopian form. The character on which *rothschildi* was based is the absence, either entirely or nearly so, of white, subterminal spots on the long rump feathers. When describing this race, Neumann listed five specimens from Tertale and Sagon River as his available material. However, out of some 36 specimens from southern Shoa examined by me, 24 have well-developed white spots, 6 have these spots faintly developed, and only 6 lack them entirely. Furthermore, not a few birds from southern Kenya Colony (which are undoubtedly typical *funebris*) are without any white rump spots. Van Someren[60] has examined "the type and cotype of *L. rothschildi*, and considers that they are not separable. The characters given by Neumann are not exhibited in the specimens. * * * One has lost all its rump feathers, and they are specimens which have been mounted and sadly maltreated."

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[55] Journ. für Orn., 1909, p. 235.
[56] Orn. Monatsb., 1911, p. 34: Lake Baringo, Kenya Colony.
[57] Journ. für Orn., 1907, p. 595: Sagon River, southern Shoa.
[58] Journ. für Orn., 1915, p. 59.
[59] Nov. Zool., vol. 27, p. 450, 1920.

2. *L. f. atrocoeruleus:* Northern Somaliland west into northeastern Ethiopia east of the eastern Ethiopian Escarpment. Similar in size to *funebris* but distinctly paler in color.

3. *L. f. degener:* Southern Somaliland south through the Taru Desert to northeastern Tanganyika Territory (the plains east of Kilimanjaro south to Dodoma). Intermediate in color between *funebris* and *atrocoeruleus*, nearer to the latter, but smaller than either; wings, in the males, 79–86 mm; in the females, 77–83 mm. Of this form, the following is a synonym: *Laniarius funebris lugubris* (Cabanis) Hilgert.[61] This name is based on the assumption that *Rhynchastatus lugubris* Cabanis[62] was founded on a small pale bird like *degener*. Though it is true that the original description states that *lugubris* is smaller than *funebris*, it is also said to be deep blackish like the latter. Furthermore, the type has no data other than "East Africa," and it is known that the collector, Baron von der Decken, traveled throughout country inhabited by at least two of the subspecies. Hence, it appears that the name is not wholly identifiable, and as such it may best be left as a synonym of the dark typical race. Reichenow states that Hilgert was wrong in his use of the name *lugubris*, as the type is a really dark bird.

The size variations of the typical race may be judged from table 54 (adults only).

The young birds have grayish-brown edges on the upper wing coverts and have the middle of the belly pale grayish buff narrowly barred with dark grayish black. Otherwise, they are generally similar to adults but are duller on the throat, head, and upperparts.

This somber-hued bush shrike is a common and widespread denizen of the dry acacia savannahs and thorny tangles of tropical eastern Africa. Like its crimson-breasted relative *L. erythrogaster*, it usually goes about in pairs and has a loud, clear, whistled note.

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[60] Nov. Zool., vol. 29, p. 117, 1922.

[61] Katalog der Collection von Erlanger in Nieder-Ingelheim, p. 272, 1908.

[62] Journ. für Orn., 1868, p. 412.

The breeding season in Ethiopia is in April and May according to the observations made by Erlanger[63] and probably earlier as well, for one of the birds in juvenal plumage was collected on March 25. Some of the birds taken in April and May are in molt, which suggests that the nesting season does not extend much beyond the latter month.

TABLE 54.—*Measurements of 36 specimens of* Laniarius funebris funebris

Locality	Sex	Wing	Tail	Culmen	Tarsus
ETHIOPIA:		*Mm*	*Mm*	*Mm*	*Mm*
Dire Daoua	Male	85.0	86.0	20.5	29.0
Do	do	87.5	86.0	21.0	32.0
Do	do	88.5	88.5	22.5	29.0
Do	do	84.0	86.5	20.5	31.0
Sadi Malka	do	95.0	88.5	23.0	31.0
Hawash River	do	92.0	93.5	21.5	30.0
Do	do	93.0	90.5	23.0	31.0
Serre	do	93.0	87.0	22.5	30.0
Near Gardula	do	85.0	80.5	24.0	31.5
Gato River	do	81.0	78.5	22.5	30.0
Do	do	87.5	78.5	22.0	32.0
Do	do	86.5	80.0	23.5	29.5
Do	do	92.0	85.5	23.5	30.0
Do	do	82.5	78.5	22.0	32.0
Do	do	83.0	84.0	23.0	28.0
Do	do	87.0	82.0	22.0	31.5
Do	do	93.0	89.5	22.5	31.5
Do	do	88.0	84.0	23.0	29.5
Bodessa	do	91.0	87.0	21.5	31.0
Dire Daoua	Female	90.5	86.5	22.5	30.5
Errer River	do	87.0	82.0	22.0	30.0
Serre	do	86.5	83.0	22.0	28.5
Gato River	do	84.0	80.5	21.5	32.0
Do	do	82.0	79.5	21.0	31.5
Do	do	86.0	80.0	21.5	30.0
Do	do	86.0	81.5	22.0	31.5
Do	do	92.0	85.0	22.0	30.5
Do	do	84.5	74.0	21.5	28.0
Do	do	85.5	77.5	20.0	28.5
Do	do	85.5	79.0	21.0	30.0
Do	do	86.5	78.0	22.0	27.5
Sagon River	do	86.0	76.0	22.0	30.5
Mar Mora	do	83.0	83.0	21.5	31.0
KENYA COLONY:					
Endoto Mountains	do	85.0	81.5	23.0	30.0
Do	do	87.0	85.0	24.0	32.0
South of Malele	do	86.0	87.0	22.5	31.0

On May 11, at Bodessa, Mearns collected a pair of these birds with their nest and two eggs. The nest was placed on a horizontal lower limb of a large tree growing in the middle of a thicket of bushes and vines. It was partly supported by twigs, but there was no underlying foundation of coarse twigs. It is a well-made, firmly constructed, cup-shaped structure of dried grasses and measures 30 mm in depth and 60 mm in diameter (inside measurements). The two eggs were fresh. They are pale blue, finely and sparingly dotted with earth brown, the dots concentrating at the large pole to form an almost solid brownish-gray patch. They measure 22 by 17 and 21 by 17.5 mm, respectively. Doctor Mearns noted that "both parents came to the nest and uttered catlike cries and hissing sounds" as he came near.

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[63] Journ. für Orn., 1905, p. 696.

To judge from Mearns's field notes, this shrike appears to be much commoner in northern Kenya Colony than in Shoa, for while he collected practically all the specimens he saw in the latter country, his records for Kenya Colony are as follows: The plains at the base of Endoto Mountains, July 19–24, 200 birds seen; Er-re-re, July 25, 10 noted, Le-se-dun, July 26, 10; Malele, July 27, 10 seen; 18 miles south of Malele, July 28–29, 75 observed; 40 miles south of Malele, July 30, 20 seen; Northern Guaso Nyiro River, July 31, 20 noted; Lekiundu River, August 4–8, 6 birds seen. From that point southward the species was commonly observed, but as these records appear to refer to the subspecies *degener*, they are incorporated in the discussion of that form.

LANIARIUS FUNEBRIS DEGENER Hilgert

Laniarius funebris degener Hilgert, Nov. Zool., vol. 18, p. 606, 1912: Darassum, Gurraland.

Specimens collected: 1 male, 4 females, Tana River, Kenya Colony, August 14–17, 1912.

The characters and distribution of this form have been stated in the discussion of the nominate race. As already intimated, the characters of *degener* do not stand out on casual examination, but are fairly constant in series. The dimensions of these five specimens are presented in table 55, and on comparison with the figures given for *funebris* it may be seen that the present race is noticeably smaller in size.

In its habits this form is similar to *funebris*.

Doctor Mearns noted this race as follows: Tana River, August 14–23, 500 birds seen; mouth of Thika River, August 23–26, 10.

Table 55.—*Measurements of five specimens of* Laniarius funebris degener *from Tana River, Kenya Colony*

Sex	Wing	Tail	Culmen	Tarsus
	Mm	*Mm*	*Mm*	*Mm*
Male	85.0	81.5	20.0	31.5
Female	80.0	79.0	22.0	29.0
Do	82.5	85.0	22.0	32.0
Do	80.0	78.0	21.5	28.0
Do	80.0	79.0	20.0	30.0

LANIARIUS FERRUGINEUS AETHIOPICUS (Gmelin)

Turdus aethiopicus Gmelin, Syst. Nat., vol. 2, p. 824, 1788: Abyssinia.

Specimens collected:

3 unsexed, Ourso, Ethiopia, September 3–October 13, 1911 (A. Ouellard coll.).
1 female, Sadi Malka, Ethiopia, December 20, 1911.
2 males, Sadi Malka, Ethiopia, January 29, 1912.
1 female, Loku, Ethiopia, March 5, 1912.
2 males, 1 female, Aletta, Ethiopia, March 6–10, 1912.
3 males, Escarpment, 7390 feet, Kenya Colony, September 6–9, 1912.

Sclater and Mackworth-Praed [64] have briefly reviewed the races of this bush shrike. They recognize eight forms and remain noncommittal as to the southern Somaliland subspecies *somaliensis* of Reichenow. However, they consider all these birds of northeastern, eastern, central, and western Africa specifically distinct from *ferrugineus* of South Africa, a procedure that seems to be wrong. I have examined a series of 75 skins and conclude that the group treated by Sclater and Praed as *Laniarius aethiopicus* is conspecific with *L. ferrugineus* and that there are in all 10 valid races. I have not seen enough South African material to attempt to study the races *pondoensis*, *natalensis*, *transvaalensis*, and *limpopoensis* proposed by Roberts,[65] and consequently the absence of these names in the following list does not necessarily imply that they are not valid. For the present, we can not do otherwise than treat all South African birds as belonging to one form—the typical one. The races, then, are as follows:

1. *L. f. ferrugineus:* South Africa north to the Limpopo River and to Inhambane district, Mozambique. This form has the flanks, abdomen, and under tail coverts strongly tinged with tawny. According to Roberts, there is considerable geographic variation in the extent of the tawny color, and it is partly on this basis that he differentiated several races.

2. *L. f. guttatus:* From the Cunene River and the Portuguese Congo east to Bechuanaland and Lake Ngami, and along the Zambesi to the Victoria Falls. This form, like the nominate race, has a white band on the wings formed by the middle coverts and the outer margins of some of the secondaries, but has the whole underparts pure white. Roberts uses the name *stricturus* Hartlaub for this form, but *gattatus* is earlier and therefore has priority.

3. *L. f. mossambicus:* Eastern Rhodesia, Nyasaland, and central Mozambique north to southern Tanganyika Territory. Characters—the white wing mark as in the two above-mentioned races, but with a faint rosy wash on the underparts; wings, 90 mm.

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[64] Ibis, 1918, pp. 633–634.

[65] Ann. Transvaal Mus., vol. 8, p. 246, 1922.

4. *L. f. ambiguus:* Tanganyika Territory and Kenya Colony west of the coastal belt and east of the Rift Valley. The white on the wing is confined to the middle upper coverts and is often concealed by overlying feathers in the folded wings of ordinary bird skins.

5. *L. f. somaliensis:* Southern Somaliland. Similar to *ambiguus*, but smaller; wings, 80–85 mm, as against 85–97 mm in the latter.

6. *L. f. major:* Kenya Colony west of the Rift Valley, Uganda, the southern Anglo-Egyptian Sudan (Upper White Nile and Bahr el Ghazel) west to Cameroon, Nigeria, Gold Coast, and Sierra Leone. Sclater[66] lists specimens from southern Nigeria, but Bannerman[67] does not mention it in his work on the birds of that country. This form resembles *mossambicus*, but is larger; wings, 95–105 mm.

7. *L. f. aethiopicus:* Ethiopia, Eritrea, and the Kassala Province of the Anglo-Egyptian Sudan, south on isolated highlands to the Kikuyu Escarpment in Kenya Colony. This race has no white on the edges of the secondaries, but the white area extends on to the longest secondary coverts; size large; wings, 100 mm.

8. *L. f. sublacteus:* The coastal districts of East Africa from Dar es Salaam to the mouth of the Tana River. This race has no white on the wing at all; size fairly small; wings, 80–85 mm.

9. *L. f. turatii:* Portuguese Guinea to Senegal. This form, which I have not seen, is said to resemble *sublacteus* in having no white mark on the wings, but is larger (wings, 105 mm); and the under-parts washed with a rosy tinge.

10. *L. f. bicolor:* Gaboon. This race, of which no material has been available for study, is said to resemble *guttatus*, but to lack the white on the inner secondaries.

In the case of the East African races, several factors have contributed to render the distributional facts confusing. Chief among these is the matter of erroneous identifications. For example, van Someren[68] considers *sublacteus* specifically distinct because both it and *ambiguus* occur on Kilimanjaro. He writes, "whether this race (*ambiguus*) interbreeds with *L. sublacteus* in the Kilimanjaro area, I am unable to say, but they both occur there." Sclater[69] in writing of *sublacteus* states that it does not extend "very far into the interior; though met with by Fischer at Komboko and Gros Aruscha, both localities not far from Kilimanjaro; but the Boubous which I have examined from that neighborhood obtained by Johnston and Hunter, must be referred to *L. aethiopicus ambiguus*." Sjöstedt[70] obtained only *ambiguus* in the Kilimanjaro region and records *sublacteus* only on the basis of Fischer's, Johnston's, and Abbott's specimens. The last-named explorer obtained three birds identified as *sublacteus* by Oberholser.[71] These specimens have been accessible to me in the present connection and are all *ambiguus*. It appears, therefore, that while *sublacteus* occurs in the lowlands near Kilimanjaro (Great Arusha, Lake Jipe, etc.), the form inhabiting the higher ground of the mountain mass itself is the race of the interior plateau of East Africa, *ambiguus*. This example, together with the fact that *aethiopicus* occurs in high altitudes near the Equator (Kikuyu Escarpment), again serves to emphasize the great importance of interpreting distribution in a tridimensional way. This has been done with notable success in North America and in mapping the bird life of the South American Andes, but hitherto it has been much neglected in works on the birds of Africa.

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[66] *In* Shelley, The birds of Africa, vol. 5, p. 308, 1912.

[67] Rev. Zool. Africaine, vol. 9, fasc. 3, 1921.

[68] Nov. Zool., vol. 29, p. 118, 1922.

[69] *In* Shelley, The birds of Africa, vol. 5, p. 318, 1912.

[70] Wissenschaftliche Ergebnisse der schwedischen zoologischen Expedition nach dem Kilimandjaro . . . Deutsch-Ostafrika, 1905–6, etc., Vögel, p. 115, 1908.

Aside from the question of altitudinal distribution, feather wear, especially in those races characterized by white outer edges on some of the secondaries, is of much importance. A specimen of *major* in worn plumage might easily pass as *aethiopicus*. Furthermore, *aethiopicus* varies somewhat, some specimens having a narrow whitish margin on the inner secondaries. One of the males from Escarpment is of this type, and van Someren has found similar examples among Ethiopian specimens.

It may well be that the aggregate known as *Laniarius ferrugineus aethiopicus* may be separable into a larger northern, and a smaller southern group. Zedlitz[72] writes that his birds from Eritrea and extreme northern Ethiopia have wing lengths of 97, 100, 103, 103, 109, and 110 mm, respectively. I have personally seen no north Ethiopian birds, but the present series measure much smaller, as may be seen from table 56.

Blanford[73] found this bird to be abundant in the pass leading to Senafé between 3,000 and 6,000 feet, in January and February, and says: "In May they were common at a much greater elevation, even at 8,000 and 9,000 feet near Senafé, where none were met with three months before. * * * They thus appear to have a considerable range in altitude, being, however, most common at all periods of the year in the subtropical regions."

The breeding season in the Hawash district is in April. Erlanger[74] found a nest just finished, with the female sitting on it, on April 9 near Harrar. According to Zedlitz,[75] the race *somaliensis* breeds in May and June.

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[71] Proc. U. S. Nat. Mus., vol. 28, p. 923, 1905.

[72] Journ. für Orn., 1910, pp. 798–799.

[73] Observations on the geology and zoology of Abyssinia, p. 341, 1870.

[74] Journ. für Orn., 1905, p. 697.

[75] Journ. für Orn., 1915, p. 60.

Dr. Mearns first met with this bird, which he refers to as the "bell shrike", on account of its clear, bell-like notes, at Sadi Malka, and observed it from there along the Hawash River as far as Gada Bourca. It was not found in the Arussi highlands, which he next traversed, and it was not until he came to Aletta, March 7–13, that he saw it again. There he noted about 100 individuals; at Loco, March 13–15, he saw 20; Gidabo River, March 15–17, 20; the Abaya Lakes, March 18–24, 60 birds; near Gardula, March 26–29, 10 birds; at Gato River the species was almost wholly lacking, as from March 29 to May 17 only 4 individuals were seen; at Sagon River, June 3, 1 was noted. None was seen between that point and the Lekiundu River in central Kenya Colony, where 10 were observed on August 8. These birds and the subsequent records probably refer to the race *major*, but unfortunately no specimens were procured. The records are as follows: Meru Forest near Mount Kenya, August 9, 50 seen; Meru, August 10, 100 birds; east of Meru (20 miles) on trail to the Tana River, August 11, 10 seen; Tana River, August 16–18, 8 noted. On the Kikuyu Escarpment, September 4–12, 50 birds were noted. The form of this high land mass is the same as that of Ethiopia—the race *aethiopicus.*

TABLE 56.—*Measurements of 14 specimens of* Laniarius ferrugineus aethiopicus

Locality	Sex	Wing	Tail	Culmen	Tarsus
ETHIOPIA:		*Mm*	*Mm*	*Mm*	*Mm*
?	Unsexed	100.0	100.0	21.0	31.5
Ourso	do	105.0	107.0	23.0	33.0
Do	do	98.0	98.0	21.0	33.0
Do	do	94.0	96.0	21.0	33.0
Sadi Malka	Male	100.0	97.0	22.0	33.0
Do	do	99.0	91.5	23.5	34.0
Aletta	do	94.0	90.0	21.5	33.0
Do	do	95.0	94.0	22.0	32.0
KENYA COLONY:					
Escarpment	do	96.0	96.0	22.0	32.0
Do	do	102.0	96.0	23.0	34.5
Do	do	102.0	97.0	23.0	33.0
ETHIOPIA:					
Sadi Malka	Female	100.0	101.0	23.0	31.5
Loku	do	89.0	92.0	20.5	30.5
Aletta	do	93.5	92.0	21.0	29.5

DRYOSCOPUS CUBLA HAMATUS Hartlaub

Dryoscopus hamatus HARTLAUB, Proc. Zool. Soc. London, 1863, p. 106: Kazeh, Unyamwesi district, Tanganyika Territory.

SPECIMENS COLLECTED:

1 "male" (= female), Tana River, Kenya Colony, August 14, 1912.
2 females, Athi River, near Juja Farm, Kenya Colony, August 31, 1912.
1 female, Escarpment, 7,390 feet, Kenya Colony, September 10, 1912.

The little puff-back shrike, so called because of its long silky rump feathers, which it erects to form a fluffy ball when displaying, ranges from South Africa to northern Angola, Rhodesia, and through East Africa to the Tana River and the vicinity of Mount Kenya. In this vast territory it varies less than some other bush-shrikes, such as *Laniarius ferrugineus.* Four races have been described. Of these only two appear to be constant enough in their characters to be worth maintaining. They are, first, the typical race inhabiting South Africa north to the Limpopo River; characterized by having the rump patch in the females somewhat tinged with buffy (of this form, Neumann's Angolan *occidentalis*[76] is a synonym); and the tropical East African race *hamatus*, which occupies the rest of the range of the species, and in which the female has the rump feathers pure gray, with no buffy wash. Of this form *suahelicus* Neumann[77] is a synonym. This race is said to comprise two groups, differing in size, in East Africa. Thus, van Someren[78] writes that birds from the interior of Kenya Colony have wings from 84 to 87 mm in length, while coastal specimens measure 75 to 82 mm. If this difference were constant, Neumann's name *suahelicus* would be available for the smaller coastal group. However, an examination of 30 skins of *hamatus* from both the coast and the far interior fails to show so definite a size difference. The wing length of coastal birds is not always less than that of inland ones. It is true that the minimal measurements of the two groups uphold van Someren's contention, but their respective maximal figures are practically the same. Thus, coastal males have wings of from 76 to 84 mm, while inland males measure 77 to 86 mm; coastal females measure 73 to 80 mm, as against 77–84 mm in the inland females. Thus, even if we ignore the males (and this may be done since the races of most species of *Dryoscopus* differ only in the females), the overlapping is too extensive to allow for a division of *hamatus* into races. Van Someren also writes that the coastal females have the underparts whitish; the inland ones have a buffy tinge on the breast. I find a buffy wash on the breast present in two out of seven inland females, and in no coastal ones. Therefore, this character, too, seems to be individual and sporadic, not constant and geographical in nature. Furthermore, the buffy color is an immature character, not found in fully adult birds.

It seems as if the coastal birds are almost a blending of *hamatus* and *D. affinis*. In fact, since this paper was first written, van Someren[79] has made a similar observation and presented his data in detail.

Sclater[80] considers *erwini* a race of *D. cubla*, but I believe that Sassi was correct in placing it as a subspecies of *D. gambensis*.

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[76] Journ. für Orn., 1899, p. 413.

[77] Ibid., p. 414.

[78] Nov. Zool., vol. 29, p. 120, 1922.

[79] Nov. Zool., vol. 37, p. 309, 1932.

[80] Systema avium Æthiopicarum, pt. 2, p. 622, 1930.

This bird lives in open woods, not in the very dense forests, and is common in most parts of its range. In the southern part of Kenya Colony the breeding season is in December and January. Van Someren[81] found a nest in the forest at Kikuyu in December. It was composed of rootlets and fibers, decorated externally with bits of lichen and cobwebs. The eggs are said to be grayish white, spotted and streaked with brownish gray.

DRYOSCOPUS GAMBENSIS ERYTHREAE Neumann

Dryoscopus malzacii erythreae NEUMANN, Journ. für Orn., 1899, p. 413: Salamona.

SPECIMENS COLLECTED:

1 male, Aletta, Ethiopia, March 10, 1912.
1 male, 1 female, Gidabo River, Ethiopia, March 16, 1912.
1 immature male, Sagon River, Ethiopia, June 3, 1912.
1 female, Bodessa, Ethiopia, May 31, 1912.

Soft parts (immature male): Iris grayish brown, bill olivaceous-black, paler on basal half below; feet plumbeous, claws grayish black.

I have not sufficient material to attempt a revision of the races of this bush-shrike, but as far as it goes the series available supports the validity of the currently recognized forms *gambensis*, *malzacii*, *nyanzae*, *erythreae*, and *erwini*. Of the other two, *sextus* and *congicus*, I have seen no specimens and therefore accept the latter because of the fact that all workers who have studied it have pronounced it valid, and the former because of the high degree of probability that the bird of the grasslands of "Neukamerun" is different from that of Adamaua. The subspecific characters of all the races are shown only by the females; the males of all are practically indistinguishable. The races are, then, as follows:

1. *D. g. gambensis:* Senegal to Northern Nigeria and to Lake Chad and Adamaua, intergrading with *malzacii* in the Darfur region.[82] Female with back ashy earth brown, the top of head noticeably darker—dark ashy gray.

2. *D. g. sextus:* The grasslands of "Neukamerun," that is, the extreme eastern part of Cameroon (south of Adamaua, and east of the high Cameroonian Plateau and northeast of the forest area).

3. *D. g. congicus:* Portuguese Congo to Gaboon. Female with the top of the head darker than in *gambensis;* underparts, especially the breast, more strongly washed with rufous-tawny.

4. *D. g. erwini:* Eastern Ituri district of the Belgian Congo south to the forests west of Lake Tanganyika; the Kivu Volcanoes, Ruwenzori, southwestern Uganda, Urundi, Ruanda, and the Bukoba district of northwestern Tanganyika Territory. Female similar to *gambensis*

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[81] Ibis, 1916, p. 394.

[82] Cf. Lynes, Ibis, 1925, p. 76.

but smaller, wings 80–83 mm, as against 89–96 mm in the nominate form. In this race the male is recognizable too on account of its small size.

5. *D. g. malzacii:* The Upper White Nile Valley west through the Bahr el Ghazal and the "Lado Enclave" to the Shari River; merging with *gambensis* in Darfur. Females with the back earth brown, with dark sepia brown head; therefore browner, less grayish than the typical subspecies.

6. *D. g. erythreae:* Ethiopia and Eritrea, west to Sennar and the valley of the Sobat. Female very dark on the head and upper back, deep fuscous; the underparts only lightly tinged with buffy.

7. *D. g. nyanzae:* Uganda (except southern and western Ankole) and Kenya Colony west of the Rift Valley (Elgeyu, Nandi, etc.). Female similar to that of *erythreae* but with the back less blackish, more brownish; underparts more tawny.

The arrangement given by Sclater and Mackworth-Praed [83] is in close agreement, as far as it goes, with the above, but the characters of *gambensis* and *malzacii* as given by them are wrong, a point arrived at independently by Lynes [84] and myself.

Neumann [85] suggests that with more extensive series it may be possible to divide *erythreae* into a north Ethiopian and Eritrean race, and a Shoan form differing from the former (typical *erythreae*) in having the head and upper back darker. This seems somewhat doubtful, as wear and age have much to do with the blackness or brownness of these areas.

The immature male and the female from Bodessa are very similar, except that the latter has the upper back slightly more brownish than the former. Both have the underparts lightly suffused with buff. The female from Gidabo River has the underparts whitish with no buffy wash, and the crown, nape, and mantle even browner than in the other female. It is, however, more abraded than the latter.

The measurements of the present specimens are rather uniform. The wings measure 85–86 mm in the males, 85.5–87 mm in the females; tail, 77–78 mm in the males, 78–79 mm in the females; culmen, 18–18.5 mm in the males, 18–19 mm in the females; tarsus, 22.5–23 in the males, 22.5–23 mm in the females.

Von Heuglin [86] records this bush-shrike as a permanent resident in the lower parts of Ethiopia, and Sennar, 6,000 feet appearing to be its upper altitudinal limit. Neumann found it at somewhat greater altitudes and gives 8,500 feet as the limit of its range. The breeding season is not known.

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[83] Ibis, 1918, pp. 635–637.

[84] Ibis, 1925, p. 77, footnote.

[85] Journ. für Orn., 1905, pp. 223–224.

[86] Ornithologie Nordost-Afrika's, etc., vol. 1, p. 457, 1869.

DRYOSCOPUS PRINGLII Jackson

Dryoscopus pringlii Jackson, Bull. Brit. Orn. Club, vol. 3, p. 3, 1893: Between Tsavo and Kufumika, Kenya Colony.

Specimens collected: 1 male (= female), Lekiundu River, Kenya Colony, August 6, 1912.

Soft parts: Iris yellow.

This uncommon little shrike occurs in the arid, thorny desert belt of Kenya Colony from the Tanganyika border east of Mount Kilimanjaro, north through the Taru Desert to Jubaland and southern Italian Somaliland. It appears not to have been recorded before from north-central Kenya Colony, and its appearance on the Lekiundu River is another confirmation of the westward extension of the coastal-Somali fauna in northern Kenya Colony and suggests that the species may yet be found in the Rendile country and southern Gallaland.

Of all the species of *Dryoscopus* the present one has the plumage most dimorphic sexually. I have seen no males, but, to judge from the description, it is totally different in color from the female. The present specimen, although sexed as a male, is undoubtedly a female, as it has the entire upperparts ashy brown and agrees absolutely with the plumage characters of the female as given by most authors.

Nothing is known of the habits of this bird. Zedlitz[87] notes, however, that of the eight specimens collected by Erlanger in southern Somaliland[88] there are two juvenal males taken on May 7 and 25, respectively, which indicates a very early nesting season.

The measurements of this specimen are as follows: Wing, 69; tail, 66; culmen, 17; tarsus, 20 mm.

Since the above account was written, van Someren[88a] has recorded this bird from a number of places in northern Kenya Colony—Northern Guaso Nyiro; Archers Post; Moyale; Mandera; Juba River.

POMATORHYNCHUS AUSTRALIS LITTORALIS (van Someren)

Harpolestes australis littoralis van Someren, Bull. Brit. Orn. Club, vol. 41, p. 102, 1921: Changamwe, Kenya Colony.

Specimens collected: 1 adult male, Tana River, below Camp No. 4, Kenya Colony, August 17, 1912.

The present specimen is clearly referable to *littoralis* and not to *minor* or *dohertyi*. It is small, having a wing measurement of 70, tail 82, culmen 17, and tarsus 24.5 mm. It agrees in color with coastal specimens (Dar es Salaam, etc.) in being very white below.

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[87] Journ. für Orn., 1915, pp. 61–62.

[88] Journ. für Orn., 1905, p. 699.

[88a] Nov. Zool., vol. 37, p. 309, 1932.

In studying this and other collections, I have examined a series of 40 skins, representing most of the races, and find that the conclusions arrived at by Neumann [89] are correct on the whole, but I differ from him in considering *dohertyi* inseparable from *minor*. I suspect that with more extensive series *emini* would prove to be likewise inseparable, but it so happens that the few birds of this race examined have been whiter below than *minor*. I have seen no birds from southwestern Africa or Angola, and therefore can not judge the validity of *damarensis* Reichenow [90] or of *ansorgei* Neumann.[91] These two forms and *littoralis* do not figure in Neumann's revision, as they were described since 1907.

In studying the geographical variations of this shrike it is important to keep in mind the fact that young birds of all the races are browner on the sides and flanks than the adults, which are less fulvous, more grayish. Young birds may be told by their lighter, brownish (not blackish) bills and by the incompleteness of the black stripes above the pale superciliaries.

In the general region covered by the present report, three subspecies occur:

1. *P. a. littoralis:* The coastal area of eastern Africa from Dar es Salaam to southern Kenya Colony, inland in the dry country to the Tana River (1,200 feet). Previously this form was known only from the coast, and the bird listed above is the first indication that *littoralis*, like not a few other coastal forms, ranges inland along the Tana River. This race has the underparts whiter than in *minor* and *emini* and is smaller (wings 63–73 mm, as against 75–85 mm in the latter two). In Tanganyika Territory this form extends inland to Kilosa, but skips the Usambara and Kilimanjaro mountain masses.

2. *P. a. emini:* Western, central, and southern Uganda north to Meridi in the Bahr el Ghazal Province of the Sudan, east to the Kavirondo district of western Kenya Colony, south to northwestern Tanganyika Territory (Bukoba), Ruanda, Urundi, and to Beni in the eastern Belgian Congo. Similar to *littoralis*, but with the underparts slightly tinged with ashy.

3. *P a. minor:* North-central Tanganyika Territory from the Usambara and Kilimanjaro region to Ukambani, Unyamwesi, Unyamyembi, and Mwanza districts, north through the Ikoma district to Kenya Colony (Ukamba, Kikuyu, and Sotik districts) north to the Northern Guaso Nyiro River, intergrading with *littoralis* on the east and with *emini* on the west. This form is more fulvous below than *emini*, but the difference between them is not great.

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[89] Journ. für Orn., 1907, p. 371.

[90] Orn. Monatsb., vol. 23, p. 120, 1915.

[91] Bull. Brit. Orn. Club, vol. 23, p. 53, 1909.

Van Someren[92] lists *emini*, *minor*, *dohertyi*, and *kivuensis* as doubtfully distinct. This is quite true for the first three, but *kivuensis* is said to be a synonym of *frater* by Gyldenstolpe.[93]

Grote[94] writes that *minor* occurs at Mikindani, southeastern Tanganyika Territory, but that the Mozambique–Nyasaland race *congener* replaces it on Cape Delgado. He states that Mikindani is the southernmost locality for *minor*, but it appears more probable that his specimens are really *littoralis.* If this be found to be true, the range of *littoralis* as given above would have to be extended southward from Dar es Salaam to Mikindani. Because of the uncertainty attached to the birds of the latter place, I have not definitely placed them with one race or another.

This bird, like all the races of the species, is a denizen of the thornbush country. Its breeding season and habits have not been recorded, but the inland form of East Africa (*minor*) nests from May to July and also in January in the Kikuyu district of Kenya Colony.

POMATORHYNCHUS SENEGALUS ERYTHROPTERUS (Shaw)

FIGURE 17

Lanius erythropterus SHAW, General Zoology, vol. 7, p. 201, 1809: "Senegal" (= South Africa).

SPECIMENS COLLECTED:

2 males, Endoto Mountains, south, Kenya Colony, July 23, 1912.
1 female, Tharaka district, Kenya Colony, August 12, 1912.
1 male, Tana River, Camp No. 5, Kenya Colony, August 19, 1912.
1 male, 1 female, 20 miles above mouth of Thika River, Kenya Colony, August 27, 1912.
1 male, Bowlder Hill, Thika River, Kenya Colony, August 28, 1912.
1 female, between Thika and Athi Rivers, Kenya Colony, August 29, 1912.

The two specimens from south of Endoto Mountains are somewhat intermediate between *erythropterus* and *catholeucus*, but nearer the former. The specimen from the Tana River and the one from Bowlder Hill are rather light and begin to approach *orientalis*, although nearer to typical *erythropterus* than to the coastal form.

There has been considerable shifting of names in this race, and inasmuch as I have had to go into this matter, I present the following brief summary so that others may be spared the work of digging it out. *Lanius erythropterus* was described by Shaw on the basis of the "Pie-grieche rousse a tete noire du Senegal," of Buffon[95] and on "Le Tchagra" of Levaillant.[96]

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[92] Nov. Zool., vol. 29, p. 110, 1922.

[93] Kongl. Svenska Vet.-Akad. Hand., 1924, p. 122.

[94] Journ. für Orn., 1913, p. 128.

[95] *In* Daubenton, Planches enluminées, pl. 479, fig. 1.

[96] Histoire naturelle des oiseaux d'Afrique, vol. 2, pl. 70, 1805.

Neumann[97] pointed out that Shaw states that his new bird "is accurately described by Monsr. Levaillant. * * * It appears so nearly allied to the *Senegal Shrike* as to make it doubtful whether it may not in reality be the same species." Neumann therefore concludes that *erythropterus* must be the South African and not the Senegalese bird. Before Neumann's paper appeared, Oberholser,[98] assuming that *erythropterus* was based on a bird from Senegal, named a form from East and South Africa *armenus*. The type locality of *armenus* is Taveta, near Mount Kilimanjaro, and while some investigators consider East African birds distinct from those of South Africa, and therefore use *armenus* for the former, I can find no tangible differences between specimens from the two regions. Oberholser's *armenus* therefore becomes a synonym of *erythropterus*. In 1922, van Someren[99] declared that Neumann was mistaken in using Shaw's *erythropterus* for the South African form—

> "* * * because Shaw founded this name on Daubenton's (Buffon's) *Planche Enluminée*, 479, which distinctly depicts a bird with a black head, and the locality is given as "Senegal"! Shaw states that possibly his bird is the same as the Senegal Shrike of Linnaeus, *H. senegalus*, and in this he is correct. His further remarks to the effect that Levaillant had accurately described "*erythropterus*" in *Hist. Natur.* (1799), no doubt referred to the second part of the general remarks made by Levaillant and not to his diagnosis. Now, turning to Levaillant's plate 70 (1799), we find that the bird there depicted is one with *a brown crown* and *a long slender bill*, i. e., undoubtedly the bird now known as *H. longirostris*, the Tshagra Shrike. The first description, which we must accept, says that the bird has the top of the head *black-brown with olive wash—not black*, and further describes a *white line* from the base of bill to nape * * * and the whole of the underside "ashy". That fits undoubtedly *H. longirostris*, not *senegalus*. In further remarks it appears, no doubt, that the black-headed South African bird was confounded with the brown-headed; but this *does not alter the first description*, nor the plate of an "adult male and female."

On the basis of this line of argument, van Someren, feeling that the South African birds differ from those of Senegal and of East Africa, proposes the name *confusus*, based on a bird from Umfalozi, Zululand. Now, as already intimated, I can see no difference between South and East African birds, so whatever the status of *erythropterus* it is clear that *confusus* is nothing but a synonym of *armenus*. The question, then, is whether *armenus* or *erythropterus* is the correct name of the South African birds. I have carefully examined the figure in Levaillant's work and find that van Someren has misidentified it. It represents not the brown-headed *Pomatorhynchus tschagra* (which van Someren calls *longirostris*), but a subadult black-headed *P. senegalus*. The top of the head is much blacker than

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[97] Journ. für Orn., 1907, p. 367.

[98] Proc. U. S. Nat. Mus., vol. 30, 1906, p. 809.

[99] Nov. Zool., vol. 29, pp. 112–113, 1922.

P. tschagra ever attains, and the bill is too short for *tschagra* and exactly matches specimens of *senegalus*, in spite of van Someren's statement to the contrary. The description that the crown is black-brown with an olive wash exactly fits subadult *senegalus*, but by no stretch of the imagination could *tschagra* be said to have anything darker than an olive-brown crown, and not very dark brown at that. The underparts as shown in Levaillant's plate are too pale for *tschagra* and match the flank color of *senegalus* very well. The white superciliaries are probably individual in character, as I have seen series of birds of single races with superciliaries ranging from white to deep buff. It follows then, that Neumann was correct in his application of Shaw's name, and that *armenus* Oberholser and *confusus* van Someren are synonyms of *erythropterus.*

The present race is perhaps the most variable of all the forms of *P. senegalus*, a fact that is in keeping with its relatively much greater geographic range. Its ecological range is also more varied than that of any of its geographical representatives, comprising many types of country and having an altitudinal range of from 2,500 to 8,500 feet.

The series collected by the Frick expedition are in fairly fresh plumage. In western Uganda it breeds in May and June; in northeastern Tanganyika Territory nests have been found in January and February.

Mearns recorded this bird in his field notebooks as follows: Tharaka district, August 12–14, 18 seen; Tana River (camps 1–6), August 15–23, 86 birds noted; Tana River at mouth of Thika River, August 23–26, 20 observed; on the Thika River, August 27–28, 50; between the Thika and Athi Rivers, August 29, 100 seen; Athi River near Juja Farm, August 30–31, 40 birds; Athi River Station, Uganda Railway, September 1, 4 seen.

POMATORHYNCHUS SENEGALUS ERLANGERI (Neumann)

FIGURE 17

Telophonus senegalus erlangeri NEUMANN, Journ. für Orn., 1907, p. 373: East shore of Lake Abaya, south Ethiopia.

SPECIMENS COLLECTED:

1 unsexed, Dire Daoua, Ethiopia, September 27, 1911 (A. Ouellard coll.).
3 males, 1 female, Dire Daoua, Ethiopia, December 5–21, 1911.
1 male, Gada Bourca, Ethiopia, December 24, 1911.
1 male, Duletcha, Ethiopia, January 24, 1912.
1 female, Iron Bridge, Hawash River, Ethiopia, February 5, 1912.
1 unsexed, Hawash River, Ethiopia, February 12, 1912.
1 female, Lake Abaya, southeast Ethiopia, March 21, 1912.
7 adult males, 1 immature male, 5 adult females, Gato River near Gardula, Ethiopia, March 27–May 13, 1912.

3 males, 3 females, Bodessa, Ethiopia, May 21–31, 1912.
1 male, Sagon River, Ethiopia, June 3, 1912.
1 female, Tertale, Ethiopia, June 10, 1912.
1 female, Turturo, Ethiopia, June 15, 1912.

Soft parts: Iris bluish gray; bill wholly black; feet pale gray, claws black.

The specimens from Dire Daoua, Gada Bourca, Duletcha, and the Hawash River are not typical examples of *erlangeri* but are somewhat intermediate between it and *habyssinicus.* The subspecies of this bush-shrike are exceedingly difficult to make out, for not only are the differences between many of them very slight, but also a worn plumage of a darker form may be practically indistinguishable from a fresher example of a paler race, and in many cases the individual variation is so great that, without enormous series, it becomes impossible to differentiate racial aggregates. The forms of northeastern Africa are more distinct than most of the others. Inasmuch as many of the forms are so poorly defined, it is not surprising that the results arrived at by the investigators who have attempted revisions of this species are far from uniform. Neumann[1] recognized 13 races, 5 of them new at that point. The next reviewer, Zedlitz,[2] admits all these and another described in the meanwhile. Sclater[3] considers all the West African forms as a single race and casts doubt on the validity of those found in the eastern part of the continent. Hartert[4] considers the birds of all of Africa except the northeastern part as typical *senegalus*, as does also Reichenow[5] and also Sclater and Mackworth-Praed.[6]

Van Someren[7] lists four races from tropical East Africa, and Grote[8] finds three valid races in Cameroon. All in all, some 24 names have been proposed for as many races of this shrike, and while I have not seen enough material of all of them, the following notes may be of use to future workers. First of all, we may list the names:

1. *Lanius senegalus* LINNAEUS, Syst. Nat., ed. 12, p. 137, 1766: Senegal.
2. *Lanius erythropterus* SHAW, General zoology, vol. 7, p. 301, 1809: "Senegal" (=South Africa).
3. *Lanius coronatus* VIEILLOT, Nouv. Dict. d'Hist. Nat., vol. 26, p. 140, 1818: No locality.
4. *Lanius senegalus* var. *habyssinica* HEMPRICH and EHRENBERG, Symbolae physicae, vol. 1, fol. e, 1828: Abyssinian coastlands.

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[1] Journ. für Orn., 1907, pp. 371–379.
[2] Journ. für Orn., 1915, pp. 54–55.
[3] *In* Shelly, The Birds of Africa, vol. 5, pp. 363–364, 1912.
[4] Die Vögel der paläarktischen Fauna, vol. 1, pp. 452–453, 1907.
[5] Die Vögel Afrikas, vol. 2, pp. 548–549, 1903.
[6] His, 1918, p. 638.
[7] Nov. Zool., vol. 29, pp. 111–113, 1922.
[8] Jour. für Orn., 1024, p. 508.

5. *Lanius cucullatus* Temminck, Manuel d'ornithologie, ed. 2, vol. 4, p. 600, 1840: "Adalusia," *error*, probably Morocco (*fide* Hartert, Die Vögel der paläarktischen Fauna, vol. 1, p. 452, 1907).
6. *Pomatorhynchus orientalis* Cabanis, *in* von der Decken, Reisen in Ost Afrika, etc., vol. 3, p. 27, 1869: Mombasa.
7. *Telephonus remigialis* Finsch and Hartlaub, Die Vögel Ost-Afrikas, p. 340, 1870: Abyssinia.
8. *Pomatorhynchus galtoni* Finsch and Hartlaub, Idem: White Nile (*nomen nudum*).
9. *Telophonus trivirgatus* (not A. Smith) Pelzeln, Verh. zool.-bot. Ges. Wien, 1881, p. 612: Mabero, Lado Enclave.
10. *Laniarius blanfordi* Sharpe, *in* Layard, The birds of South Africa, ed. 2, p. 237, 1882: Anseba.
11. *Telephonus percivali* Ogilvie-Grant, Bull. Brit. Orn. Club, vol. 10, p. 50, 1900; and Nov. Zool., vol. 7, p. 251, 1900: Lahej, southwestern Arabia.
12. *Pomatorhynchus senegalus armenus* Oberholser, Proc. U. S. Nat. Mus., vol. 30, p. 809, 1906: Taveta, Kenya Colony.
13. *Telophonus senegalus erlangeri* Neumann, Journ. für Orn., 1907, p. 373: Lake Abaya, south Ethiopia.
14. *Telophonus senegalus pallidus* Neumann, Ibid., p. 375: Accra, Gold Coast.
15. *Telophonus senegalus camerunensis* Neumann, Idem: Yaunde, Cameroon.
16. *Telophonus senegalus rufofuscus* Neumann, Ibid., p. 376: Ngungo, Angola.
17. *Telophonus senegalus catholeucus* Neumann, Ibid., p. 377: Karo Lola, southern Somaliland.
18. *Telephonus senegalus mülleri* Zedlitz, Journ. für Orn., 1910, p. 798: Middle Mareb River, Eritrean-Abyssinian border.
19. *Tschagra senegala sudanensis* Sclater and Mackworth-Praed, Ibis, 1918, p. 638: Mongalla, Sudan.
20. *Pomatorhynchus nothus* Reichenow, Journ. für. Orn., 1920, p. 399: "Lake Chad region" (lower Shari River [Grote, Journ. für Orn., 1924, p. 508]).
21. *Tschagra senegala warsangliensis* Clarke, Bull. Brit. Orn. Club, vol. 40, p. 50, 1919: Mush Haled, eastern British Somaliland.
22. *Tschagra senegala chadensis* Bannerman, Rev. Zool. Africaine, vol. 9, p. 355, 1921: Lake Chad district of Northern Nigeria.
23. *Harpolestes senegalus mozambicus* van Someren, Bull. Brit. Orn. Club, vol. 41, p. 103, 1921: Lumbo, Mozambique.
24. *Harpolestes senegalus confusus* van Someren, Nov. Zool., vol. 29, p. 113, 1922: Unfalozi, Zululand.

Of these some may be immediately disposed of. Thus, *Lanius coronatus*, being without locality, is a synonym of either *senegalus* or *erythropterus*, probably the latter. Likewise, *Pomatorhynchus galtoni* and *Telophonus trivirgatus* are synonyms of *sudanensis*, the first named being a *nomen nudum*, and the second being preoccupied by *trivirgatus* Smith[9] which, in turn, is a synonym of *australis*. *Laniarius blanfordi* is a synonym of *habyssinicus; armenus*, likewise, goes into the synonymy of *erythropterus* (see under the discussion of the latter race) as does also *confusus*. This leaves 18 forms, of which 1 (*cucullatus*) is a bird of palearctic Africa and 6

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[9] Illustrations of the zoology of South Africa, pl. 94, 1849.

(*senegalus*, *pallidus*, *camerunensis*, *rufofuscus*, *nothus*, and *chadensis*) are West African and need not concern us here.

The 11 forms of southern and eastern Africa (and southwestern Arabia) present some difficulties, in that some of them are admittedly intermediate between two other races, and the material available for study has not been adequate in all cases to decide definitely on all the points. To simplify matters we may begin by elimination. Zedlitz's form *mülleri* appears to be indistinguishable from *habyssinicus.* Not only is the original description a little vague, but in his comments on the type, Gyldenstolpe[10] writes that the "lack of material makes it impossible at present to ascertain whether this form is separable from * * * *habessinica* . * * * Another form, viz * * * *blanfordi* * * * the terra typica of which is the Anseba valley * * * is regarded * * * as a synonym to * * * *habessinica.*" If there is anything in the characters *of mülleri*, the birds of the Mareb River can not be considered as anything but intermediates between *habyssinicus* and *percivali*, but nearer to the former. Similarly, Clarke's *warsangliensis* seems to be another intermediate between *habyssinicus* and *percivali*, in this case also nearer to the former. I have seen no pertinent material of it. Sclater recognizes it, but, judging by its description, I hesitate to include it here.

The recognizable East African forms are as follows:

1. *P. s. erythropterus:* South Africa north through Rhodesia and the interior of Mozambique to Nyasaland, the Katanga and the interior of Tanganyika Territory and of Kenya Colony to the Endoto Mountains, and through southern, eastern, and central Uganda, being replaced in the southern Sudan by *sudanensis.* This race (from which *rufofuscus* of Angola is only doubtfully distinct) has the upper back rather dark brown with a strong rufous wash and has the underparts grayish; wings, 79-96 mm.

2. *P. s. orientalis:* The coastal strip of northern Tanganyika Territory and southern Kenya Colony (from Pangani River to Lamu, inland to Morogoro, and the Uluguru Mountains, in the former country, to Maungu, Changamwe, Mazeras, and Samburu in the latter). Similar to *erythropterus*, but the underside more whitish, less grayish, the upper back paler, more sandy olive-brown; size averaging very slightly smaller, but extreme measurements the same as in *erythropterus.* The type of *armenus* is an intergrade between *orientalis* and *erythropterus* but nearer the latter.

3. *P. s. mozambicus:* Lumbo, Mozambique; probably the coastal belt of northern Mozambique. Nearest to *orientalis* but paler above and below; the rump grayish, not brownish, the superciliaries whiter.

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[10] Arkiv för Zool., vol. 19A, no. 1, pp. 38–39, 1926.

4. *P. s. catholeucus:* Southern Somaliland and the immediately adjacent parts of southeastern Ethiopia and northeastern Kenya Colony, intergrading in northern Kenya Colony with *erythropterus.* Paler above than *erythropterus*, even than *orientalis*, the underparts the purest white of any of the races, the gray being wholly restricted to the sides and flanks; wings, 84–90 mm. (None seen by me.)

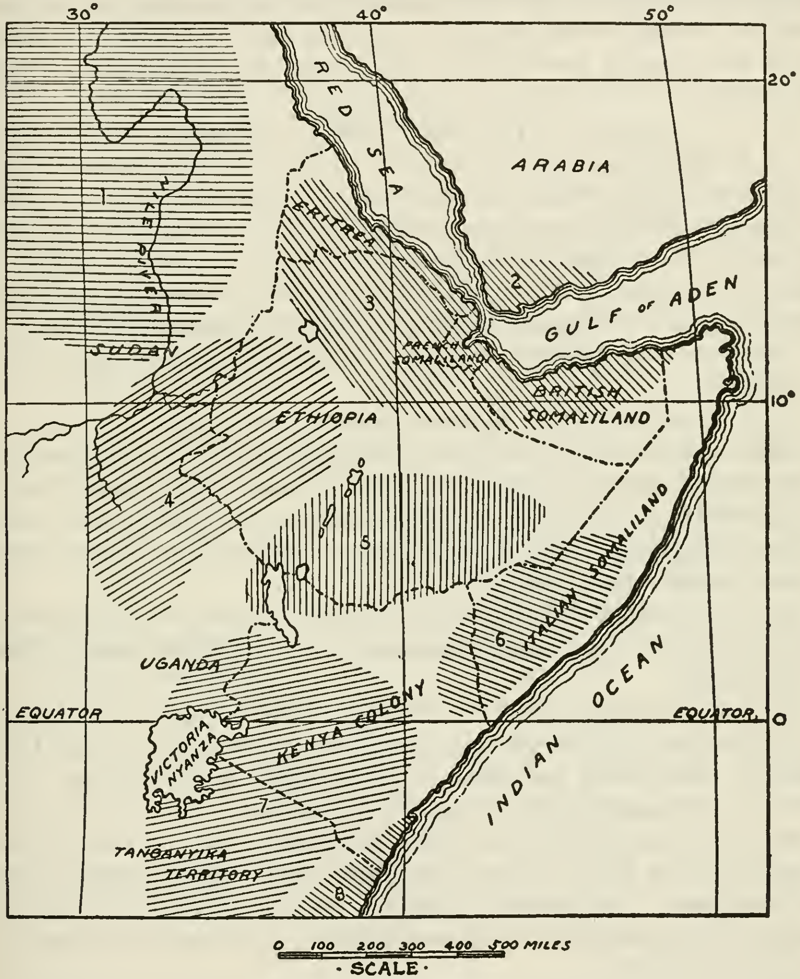
30°
40°
50°
20°
10°
0
RED SEA
ARABIA
NILE RIVER
ERITREA
1
2
3
GULF OF ADEN
FRENCH SOMALILAND
BRITISH SOMALILAND
SUDAN
ETHIOPIA
4
5
ITALIAN SOMALILAND
6
UGANDA
EQUATOR
EQUATOR
VICTORIA NYANZA
KENYA COLONY
INDIAN OCEAN
7
TANGANYIKA TERRITORY
8
0 100 200 300 400 500 MILES
· SCALE ·

FIGURE 17.—Distribution of *Pomatorhynchus senegalus* in northeastern Africa.

1. *P. s. remigialis.*
2. *P. s. percivali.*
3. *P. s. habyssinicus.*
4. *P. s. sudanensis.*
5. *P. s. erlangeri.*
6. *P. s. catholeucus.*
7. *P. s. erythropterus.*
8. *P. s. orientalis.*

5. *P. s. remigialis:* The Nile Valley from Khartoum to Dongola and Halba, west through Khartoum and Darfur to Lake Chad, where

it is replaced by *chadensis*. This form is so distinct as to be almost a species. The underparts are creamy white, with or without a slight grayish-buff tinge; the superciliaries are very broad and are pure white anteriorly, pale tawny posteriorly; the hind neck and upper back sandy tawny; the inner as well as the outer webs of the remiges wholly rufous basally, whereas in the other races the inner webs are fuscous basally with a narrow rufous margin; wings, 87–97 mm.

6. *P. s. sudanensis:* The Lado Enclave, Mongalla, Upper Nile, Bahr el Ghazal, and Sennar districts of the Sudan, to central Ethiopia (east to the region between Lakes Tsana and Zwai; in other words, the Ethiopian regions drained by the tributaries of the Nile system). This form is characterized by its dark back, which is distinctly grayish brown with no rufous; the underparts are clear gray; wings, 77–88 mm. Sclater has recently claimed that this name is a synonym of *erlangeri*, but I find *sudanensis* to be constant in its characters.

7. *P. s. habyssinicus:* Eritrea, northern Ethiopia, and most of British and French Somaliland, intergrading with *sudanensis* near Lake Tsana and with *erlangeri* in the Hawash Valley near Harrar and Dire Daoua. This form is dark-backed, but has the back more rufous, less grayish than in *sudanensis;* underparts gray as in *sudanensis;* size smaller; wings, 73–85 mm.

8. *P. s. percivali:* Southwestern Arabia. Similar to *habyssinicus* but darker below, and somewhat smaller; wings, 78–80 mm. (None seen by me.)

9. *P. s. erlangeri:* Southern Ethiopia (the Shoan Lakes region, Gallaland, and the Omo district) south to the neighborhood of Lake Rudolf. Similar to *habyssinicus* but slightly larger; wings, 81.5–89.5 mm; the nape slightly lighter than the back.

Sclater[11] states that *erlangeri*, *habyssinicus*, and *percivali* differ from the other forms in having no dusky cross bands on the central tail feathers. This character does not hold at all well. I find that *erlangeri*, for example, has these markings just as well developed as does *erythropterus*.

The size variations of the present series are shown in table 57. Although *erlangeri* is, on the whole, slightly larger than *habyssinicus*, the northern specimens (from the Hawash Basin) are not smaller than others from southern Shoa but, on the contrary, have longer tails.

In color the variations affect all parts of the bird. The superciliaries vary from wholly white to white anteriorly and yellowish buff posteriorly; the middle rectrices from earth brown barred with dusky fuscous to almost pure fuscous. The latter character varies with age; younger birds have paler central rectrices, older specimens darker ones. According to Neumann and Sclater and Mackworth-Praed, *erlangeri* has a distinct tinge of rusty brown on the underparts, which are not pure gray. This the present series fails to confirm, as some individuals have, and others have not, this rusty tinge.

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[11] *In* Shelley, The birds of Africa, vol. 5, p. 361, 1912.

TABLE 57.—*Measurements of 32 specimens of* Pomatorhynchus senegalus erlangeri *from Ethiopia*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Dire Daoua	Male	86.0	104.5	20.0	30.0
Do	do	85.5	101.5	20.0	28.0
Do	do	89.0	100.0	21.0	30.0
Gada Bourca	do	89.0	101.5	20.0	29.0
Duletcha	do	82.0	101.0	21.0	28.0
Hawash River	do	86.0	103.5	21.0	29.5
Gato River	do	83.0	87.5	21.5	28.0
Do	do	89.5	102.0	20.0	31.0
Do	do	85.0	95.0	20.0	28.5
Do	do	85.0	97.0	19.0	29.0
Do	do	84.0	94.0	19.5	28.0
Do	do[1]	--------	--------	--------	--------
Do	do	84.0	89.0	20.0	30.5
Do	do	80.0	82.0	20.5	30.0
Bodessa	do	85.0	99.0	20.0	29.0
Do	do	85.0	93.0	22.0	29.0
Do	do	85.0	97.0	20.0	29.0
Sagon River	do	85.0	92.5	21.0	30.5
Dire Daoua	Unsexed	85.0	98.0	21.0	27.0
Do	Female	89.0	96.0	19.0	27.5
Iron Bridge, Hawash River	do	84.0	97.5	20.5	27.5
Lake Abaya	do	80.0	89.0	21.0	30.0
Gato River	do	82.0	98.0	20.0	28.5
Do	do	85.5	94.0	21.0	28.5
Do	do	83.0	93.0	--------	28.0
Do	do	84.5	89.0	21.0	30.0
Do	do	88.0	100.0	19.0	30.0
Bodessa	do	80.0	92.5	21.5	28.5
Do	do	--------	--------	--------	--------
Do	do	81.5	91.0	20.0	28.0
Tertale	do	84.0	98.0	20.5	30.5
Turturo	do	83.5	91.0	20.5	29.5

[1] Immature.

A juvenal bird, collected on May 25 at Bodessa, when about 10 days out of the nest, resembles adults generally, but differs in having the crown patch deep fuscous instead of black, in having the entire superciliaries buffy, and in having the upper wing coverts broadly edged with rufous-buff, lighter than the rufous on the remiges.

The majority of the present series are in rather worn plumage, while a few, taken in April and May, are in molt. The freshest plumages are those of birds taken in December and January.

Mearns recorded the color of the iris in this bird as bluish gray, but several other observers agree in stating that it is brown, with 3 to 6 white spots arranged around the dark center.

The breeding season is in April, May, and June. Erlanger[12] found two nests near Harrar on May 7 and 9, while Zaphiro found another in the same region in June. Mearns collected three nests with eggs, as follows:

1. Nest and three eggs, taken at Gato River, on April 21, 1912. The female was seen sitting on the nest and was shot as she flew from it. Dissection of the bird showed that the last egg had been laid.

2. Nest and two eggs, taken at Gato River, May 13, 1912. The nest was found on May 11 and had two eggs in it. Two days later it still contained only two eggs, which were slightly incubated. The nest was in a leafy bush near a small thicket in open grassy country. It was 2 feet above the ground. Mearns notes that near by on May 9 he found another nest, with two fresh eggs, about 3 feet up in a thorny solanaceous shrub. The next time seen, the nest had been torn from the bush and the eggs had disappeared.

3. Nest and two eggs, about 6 feet up in a small spreading tree, at Bodessa, May 31, 1912. The male parent was shot as it flew from the nest, making the identification positive.

The nests collected are fairly compactly constructed cups of rootlets, tendrils, fine twigs, and grass stems, with a scattering of dead leaves on the outside. They measure approximately 100 mm in diameter (outside measurements, the inside dimensions being about 75 mm) and 35 mm in depth. The eggs, as exemplified by the three clutches collected, are extraordinarily variable. The first set listed above are very long, and rather pointed at the small end, and measure 25 by 19.5, 26.5 by 18.5, and 27 by 18.5 mm. The second set are rounder, more bluntly elliptical, and much shorter. They measure 21 by 18 and 22.5 by 18 mm. The third set are intermediate in size and shape, and measure 23.5 by 18 and 23.6 by 18.1 mm. The long, large eggs of set No. 1 are more heavily marked than the others, the small, rounded eggs of set No. 2 being the most lightly marked. All are white, with purplish-brown and grayish spots and specks. In the large, heavily marked eggs, there is a well-defined ring of dark, heavy spots around the large pole; in the small, lightly marked ones, the spots are replaced by fine hairlike lines distributed quite evenly all over the eggs.

Besides the specimens collected, Mearns noted this bush shrike as follows: Aletta and Loco, March 7–13, 10 seen; Loco, March 13–15, 10 noted; Gidabo River, March 15–17, 10 birds; the Abaya Lakes, March 18–26, 100 noted; between the Abaya Lakes and Gardula,

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[12] Journ. für Orn., 1905, p. 692.

March 26–29, 20 seen; Gato River near Gardula, March 29–May 17, 1,000; Gato River crossing, May 17, 25 seen; Anole village, May 18, 10 noted; Sagon River, May 19, 15 birds; Bodessa, May 19–June 6, 120; Sagon River, June 3–6, 200; Tertale, June 7–12, 100; El Ade and Mar Mora, June 12–14, 40 seen; Turturo, June 15–17, 100; Anole, June 17, 25 birds; Wobok, June 18, 6 seen; near Saru, June 19, 10 noted; Yebo and Karsa Barecha, June 20–21, 20 birds seen.

POMATORHYNCHUS JAMESI JAMESI (Shelley)

FIGURE 18

Telephonus jamesi SHELLEY, Ibis, 1885, p. 403, pl. 10: Somaliland (high plateau of the interior south of Berbera).

SPECIMENS COLLECTED:

1 adult male, 1 immature male, 3 adult females, Bodessa, Ethiopia, May 20–26, 1912.
2 adult males, 1 adult female, Tertale, Ethiopia, June 9–11, 1912.
1 adult male, Mar Mora, Ethiopia, June 14, 1912.
1 adult female, Turturo, Ethiopia, June 17, 1912.
1 adult female, Malata, Ethiopia, June 22, 1912.
2 adult males, 1 adult female, Indunumara Mountains, Kenya Colony, July 14–16, 1912.
1 adult male, camp near Endoto Mountain, Kenya Colony, July 19, 1912.
1 adult male, Northern Guaso Nyiro River, Kenya Colony, August 3, 1912.
1 adult male, Lekiundu River, Kenya Colony, August 5, 1912.

This shrike occurs from the interior plateau country of British Somaliland south (through Ogaden?) to the Gurra and Garre-Lewin countries to extreme southern Shoa (north to the Abaya Lakes) west to the Turkwell River and south through Kenya Colony (in the arid semidesert country) from the Rendile district to the Kerio River, to the Northern Guaso Nyiro and Lekiundu Rivers, to the Taru Desert (Tsavo, etc.) and the plains east of Kilimanjaro (Teita, Mbuyuni), and to Maungu (inland from Mombasa). It breaks up into three races, the distribution of which is nearly unique among the birds of northeastern Africa. The typical race occurs from British Somaliland to Ethiopia and northern Kenya Colony to the Taru Desert and the Kilimanjaro Plains, while on the coast around the mouth of the Juba River (extending northward into Italian Somaliland and southward into Kenya Colony) is another form, *kismayensis*, which, in turn, is replaced at the mouth of the Tana River by still another, *mandanus*. The unusual feature is that the form of the low-lying Somali coastlands is not the race that extends westward through the Garre-Lewin and Gurra countries to Lake Rudolf, but is wholly restricted to the coastal belt. Ordinarily the race inhabiting the Taru Desert also occurs in the Somali lowlands, but in this case it is the form of the interior plateau of western Somaliland that ranges south to the Tsavo and Teita countries. In his elaborate treatise on the zoogeography of southern Somaliland, Zedlitz[13] also notes the remarkably restricted range of the coastal birds.

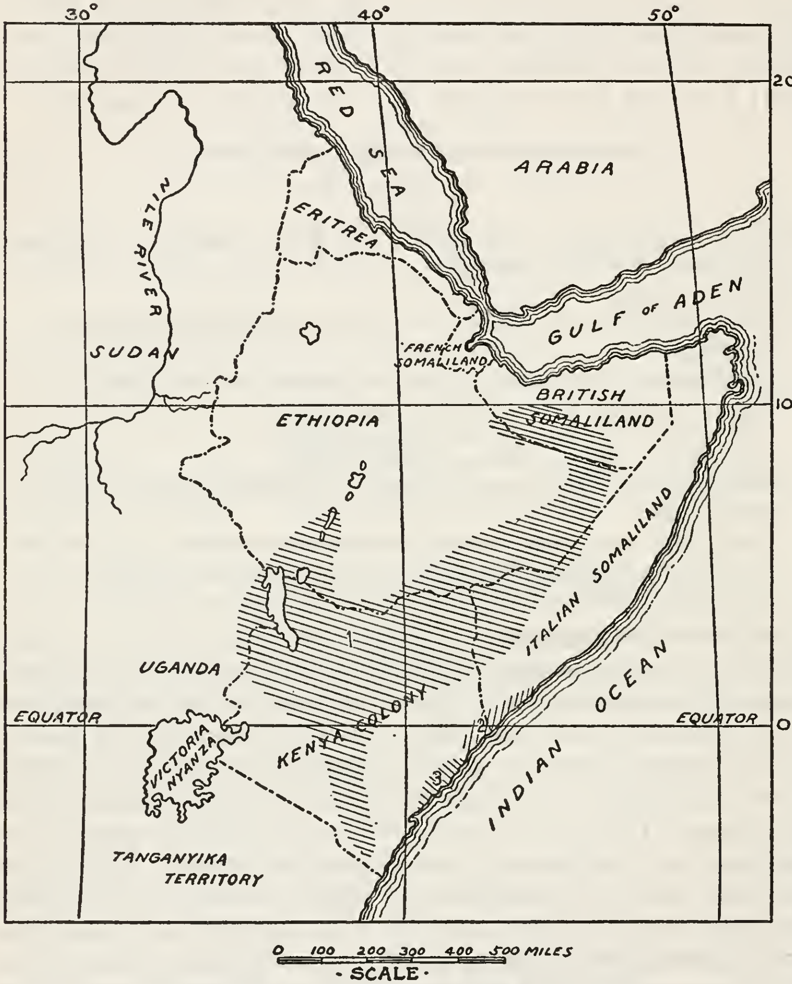
30°
40°
50°
20°
RED SEA
ARABIA
NILE RIVER
ERITREA
GULF OF ADEN
FRENCH SOMALILAND
SUDAN
BRITISH SOMALILAND
10°
ETHIOPIA
ITALIAN SOMALILAND
1
UGANDA
KENYA COLONY
OCEAN
EQUATOR
EQUATOR
0
2
VICTORIA NYANZA
INDIAN
3
TANGANYIKA TERRITORY
0 100 200 300 400 500 MILES
SCALE

FIGURE 18.—Distribution of *Pomatorhynchus jamesi.*

1. *P. j. jamesi.*
2. *P. j. kismayensis.*
3. *P. j. mandanus.*

The races differ only in coloration, and as I have seen no material of *kismayensis* and *mandanus*, I can only repeat what others have said of their subspecific characters. The form *mandanus* is said to differ from *jamesi* in having the brown of the upperparts more sandy, less ashy in hue and in having the sides of the crown much paler. The race *kismayensis* resembles *mandanus* but differs from it and from *jamesi* in lacking any olive wash on the sides, flanks, and abdomen. The three races have been upheld by all workers who have had satisfactory series to study and are therefore probably valid. In regard to the color of the sides and flanks, however, the present series exhibits great variation, which, in turn, suggests that extensive series of coastal birds may minimize the distinctness of *kismayensis* and *mandanus*. A male from the Indunumara Mountains has no olive wash at all, but has the sides and flanks pure gray; a male from Tertale has only a slight extent of olive, while another male from the latter locality has the olive color so strongly developed that, if it be compared with an extremely grayish bird like the one from the Indunumara Mountains, it looks almost distinct enough to be subspecifically separated. There is also some variation in the lightness or darkness of the sides of the head. The size variations of the adults are presented in table 58.

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[13] Journ. für Orn., 1915, p. 56.

Table 58.—*Measurements of 16 specimens of* Pomatorhynchus jamesi jamesi

Locality	Sex	Wing	Tail	Culmen	Tarsus
ETHIOPIA:		*Mm*	*Mm*	*Mm*	*Mm*
Bodessa	Male	--------	--------	20.0	22.5
Tertale	do	70.0	75.0	20.0	24.0
Do	do	72.0	88.0	19.5	25.5
Mar Mora	do	64.0	87.5	20.0	25.5
KENYA COLONY:					
Indunumara Mountains	do	70.5	87.0	20.0	24.0
Do	do	70.0	85.0	19.5	23.0
Near Endoto Mountains	do	71.0	87.0	21.0	25.0
Northern Guaso Nyiro River	do	68.0	80.0	----------	25.0
Lekiundu River	do	69.5	82.0	19.5	24.0
ETHIOPIA:					
Bodessa	Female	73.0	85.0	19.0	23.5
Do	do	68.0	82.0	19.5	24.0
Do	do	79.0	85.0	21.0	24.0
Tertale	do	72.0	80.0	20.0	24.0
Turturo	do	69.0	86.5	20.5	24.5
Malata	do	65.0	87.0	19.0	24.5
KENYA COLONY:					
Indunumara Mountains	do	68.0	80.0	20.0	22.0

The immature bird taken at Bodessa on May 20 was still attended by its parents and is therefore obviously a juvenal individual. It is not quite fully grown, all the rectrices being still inclosed in their sheaths basally. Inasmuch as the juvenal plumage has never been described, the following notes are of interest: This specimen resembles the adults on the upperparts, even to the black median crown stripe and the ocular stripes, but the upper back is slightly darker, more olive-brown than in older birds; the underparts are conspicuously darker in the young bird, especially on the breast, upper abdomen, sides, and flanks, which are very dark brownish gray, the upper throat and chin, and the middle of the abdomen being whitish. The tail feathers are similar to those of the adults but more pointed.

Erlanger[14] found this shrike to be rather numerous in the Ginir district of southwestern Italian Somaliland but did not meet with it north of that region. He found it breeding during March and April and discovered nests with eggs. As noted above, Mearns found a juvenal bird a few weeks out of the nest, with its parents, at Bodessa on May 20. On May 18 at the same place, he found a nest containing one egg. Three days later it contained three eggs. Doctor Mearns visited the nest on May 22, 23, 24, 25, and 26, and it was not until the last date that he was able to see the bird on the nest and ascertain its identity. He shot the bird (U.S.N.M. no. 245584) and found it to be a male. The nest contained only a single egg, the other two being smashed under the bush. The nest was 3 feet above the ground in a bush in heavy grass. He notes: "Parents exceedingly shy. The nest as preserved is entire, there being no coarse outer structure. It was set down between four rather stout branches to which it was firmly attached by spider webs." The egg measures 23.8 by 18.1 mm, "and differs from that of *P. s. erlangeri* in having the spots less reddish brown, more smeary or less sharply defined, and in having many purplish or lilac-brown ones. * * * distribution of spots * * * scattered over the entire egg, most sparse at the little end and mostly aggregated in a circle close to the great end * * * ground color buffy white, pinkish before blown." The preserved nest is a compactly built cup of fine tendrils, grasses, stems, and leaf ribs, and measures 100 mm in diameter, outside measurement (70 mm inside) and 35 mm in depth.

Aside from the specimens collected, Mearns observed this bird on several occasions. On the Northern Guaso Nyiro River, July 31–August 3, 10 birds were noted; Lekiundu River, August 4–8, 18 seen; Meru and Kilindini, August 10, 4 birds; 20 miles east of Meru on the trail to the Tana River, 10 seen; Tharaka district, August 13–14, 8 birds; Tana River, August 15–17, 12 birds noted.

CHLOROPHONEUS SULFUREOPECTUS FRICKI Friedmann

Chlorophoneus sulfureopectus fricki FRIEDMANN, Occ. Papers Boston Soc. Nat. Hist., vol. 5, p. 252, 1930: Sadi Malka, Ethiopia.

SPECIMENS COLLECTED:

1 adult male, Sadi Malka, Ethiopia, December 21, 1911.
1 adult female, near Gardula, Ethiopia, March 28, 1912.
9 adult males, 6 adult females, 4 immature males, 1 unsexed, Gato River near Gardula, Ethiopia, April 1–26, 1912.
1 immature male, Sagon River, Ethiopia, June 3, 1912.

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[14] Journ. für Orn., 1905, p. 694.

Soft parts: Iris hazel; bill and claws black; feet plumbeous.

The geographic races of the orange-breasted bush-shrike are rendered somewhat obscure by the relatively great individual nongeographic variations of this bird, but, on the whole, five forms appear to be recognizable. In each case the characters are average ones, and it is therefore not surprising that several investigators have decided against them and recognize no subspecific groups. Gyldenstolpe [15] and Sclater and Mackworth-Praed [16] are among those who conclude that the individual is greater than the geographic variation in this species. The forms that I find tenable are as follows:

1. *C. s. sulfureopectus:* Senegal to the Gold Coast and Togoland east to the White Nile and Bahr el Ghazal districts of the Anglo-Egyptian Sudan, the Uelle district of the Belgian Congo, and to southwestern Kenya Colony (Nandi, Elgeyu, etc.). This form is characterized by having blackish auriculars. Gyldenstolpe tentatively admits the distinctness of this form from the birds of southern and eastern Africa, although he refrains from trinomials. In the eastern part of its range (Uganda and southwestern Kenya Colony) this form has a tendency to average paler, a fact that led van Someren [17] to call his Ugandan series *modestus* of Bocage.

2. *C. s. similis:* South Africa from the eastern part of the Cape Province northward through Natal and the Transvaal to southern Mozambique and Southern Rhodesia (Gazaland). Characters—auriculars grayish or grayish black; the orange color on the breast very strongly developed, the area involved being larger and the color deeper than in *sulfureopectus;* the forehead orange-yellow.

3. *C. s. modestus:* Northern Angola, east through the Katanga to the Marungu plateau, eastern Belgian Congo. This race is paler on the breast than any of the others and has no black beneath the eyes, the auriculars being grayish.

4. *C. s. suahelicus:* Eastern Africa from central Mozambique north through Tanganyika Territory and southern Kenya Colony east of the Rift Valley, and along the coast to southern Somaliland. Occasionally west of the Rift Valley (specimen from Kakamega examined). This form is similar to *similis*, but differs from it in that it has the forehead and the inner margins of the rectrices yellow, not orange-yellow; size slightly smaller; wings, 83–92 mm, as against 89–99 mm.

5. *C. s. fricki:* Southern Ethiopia (Shoa and Arussi-Gallaland) to northern Kenya Colony south approximately to the Northern Guaso Nyiro River. Similar to *suahelicus* but with the green color

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[15] Kongl. Svenska Vet.-Akad. Handl., 1924, pp. 115–116.

[16] Ibis, 1918, p. 632.

[17] Nov. Zool., vol. 29, p. 114, 1922.

on the forehead much more extensive, in adult males always reaching beyond the middle of the eyes, and not infrequently to the occiput; the yellow frontal stripe broader, lighter, and brighter than in *suahelicus*. As I have already pointed out in another paper[18] the extent of the green on the forehead and crown has been said by some investigators to be very variable and, consequently, not a reliable subspecific character. The point that seems to have been overlooked is that in all the forms it is more extensive in males than in females, and care should be taken to compare only correctly sexed birds with others of the same sex. Then the difference between *fricki* and *suahelicus* becomes apparent. Another difficulty is that the region in Kenya Colony in which perhaps more collecting has been done than in any other—the Ukamba and Kikuyu country north to Mount Kenya—is inhabited by intermediates between these two races, and, like all intergrades, the birds there are very variable and taken by themselves appear to successfully repudiate the validity of geographic races.

The present series indicates that the pectoral band averages darker in *fricki* than in *suahelicus*. In immature birds it is rather faint and often has wavy, narrow blackish bars running transversely across it. Immature birds likewise lack, or almost lack, the greenish on the forehead and crown.

Three of the Gato River specimens show a melanistic tendency, having the ordinarily blue-gray occiput, nape, and upper back sprinkled with blackish. The birds in fresh plumage were collected between December 21 and April 24; a freshly plumaged bird just finishing the tail molt was taken on April 9; birds in abraded condition were taken from April 2 to June 3.

The size variation of this subspecies may be seen from table 59.

In his notes on the labels, Mearns records that on April 1 and April 26 he collected mated pairs, an indication that the birds were in breeding condition. Erlanger[19] writes that the breeding season appears to be over by the middle of May, and that newly fledged young may be seen from then until July. Stoneham[20] found a nest in northeastern Uganda in February. The nest was in process of building and was in a tall thornbush about 12 feet from the ground. I have seen no birds from northeastern Uganda and can not say whether they are *fricki* or *modestus* or intermediate between the two.

In addition to the specimens collected, Mearns recorded this bird as follows: Loco, near Lake Abaya, March 13–15, 2 seen; Gidabo River, March 15–17, 10 birds; North or "Black" Lake Abaya, March 18, 20 noted; South or "White" Lake Abaya, March 24–26, 4 seen;

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[18] Occ. Papers Boston Soc. Nat. Hist., vol. 5, p. 252, 1930.

[19] Journ. für Orn., 1905, p. 695.

[20] Ibis, 1928, pp. 269–270.

between the Abaya Lakes and Gardula, March 26–29, 10; Gato River near Gardula, March 29–May 17, 300 noted; Sagon River, June 3–6, 20 seen; Tertale, June 7–12, 10 birds; Mar Mora and Turturo, June 12–17, 36 seen; Wobok, June 18, 2 birds; near Saru, June 19, 2 noted.

TABLE 59.—*Measurements of 25 specimens of* Chlorophoneus sulfureopectus fricki *from Ethiopia*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Lake Zwai	Male	91.0	91.0	14.0	24.5
Lake Bakate	do	91.0	87.0	14.5	23.0
Sadi Malka	do.[1]	89.0	87.0	15.5	24.5
Gato River	do	88.0	87.0	15.0	25.0
Do	do.[2]	89.0	90.0	15.0	25.0
Do	do	87.0	85.0	16.0	25.5
Do	do.[2]	87.0	85.0	14.0	23.5
Do	do	90.0	87.0	15.5	23.0
Do	do	91.5	91.0	14.5	24.5
Do	do.[2]	84.0	85.0	14.5	22.5
Do	do	90.0	90.0	14.0	23.0
Do	do.[2]	88.0	90.0	15.0	24.0
Do	do	91.0	93.0	15.0	24.0
Do	do	92.0	93.0	15.0	25.5
Do	do	89.0	85.0	15.0	24.5
Do	do	91.0	87.0	14.5	25.0
Do	do.[2]	88.0	86.0	15.0	23.0
Do	Unsexed	89.0	86.0	----------	23.0
Do	Female	89.0	83.5	----------	23.0
Do	do	89.0	90.0	14.0	25.0
Do	do	84.0	81.0	14.5	24.0
Do	do	89.0	84.0	15.0	23.0
Do	do	87.0	87.0	14.5	24.0
Do	do	89.0	81.5	15.0	25.0
Near Gardula	do	88.0	84.0	15.0	24.0

[1] Type. [2] Immature.

CHLOROPHONEUS SULFUREOPECTUS SUAHELICUS (Neumann)

Cosmophoneus sulphureopectus suahelicus NEUMANN, Journ. für Orn., 1899, p 395: Kakoma, south of Tabora, Tanganyika Territory.

SPECIMENS COLLECTED:

1 unsexed, Tharaka district, Kenya Colony, August 12, 1912.
1 female, Tana River, camp 6, Kenya Colony, August 21, 1912.
1 male, 1 female, Tana River at mouth of Thika River, Kenya Colony, August 24, 1912.
2 males, 1 female, Thika River, 9 to 20 miles above mouth, August 27, 1912.
1 female, Athi River near Juja Farm, Kenya Colony, August 31, 1912.

The range and characters of this race have been discussed under the northern form *fricki*. Two of the above-listed specimens (the males from Thika River, August 27) are intermediate in coloration and may be matched by Ethiopian examples (typical *fricki*), but, because of the fact that the majority of south-central Kenyan birds are true *suahelicus*, I refer them to this race also. Both of them are molting the rectrices.

The three specimens from the Tana River and the female from the Thika River are either immature or subadult. They are not juvenal birds, however. An extensive series of this race shows that there are three plumages as follows:

1. Juvenal plumage: In this stage the forehead, crown, occiput, and nape are dark grayish (not blue-gray as in older birds), each feather broadly tipped with whitish giving a barred appearance to these parts; the cheeks and auriculars like the crown; lores whitish; back and rump greenish gray barred broadly with contiguous black-and-white marks; the wings and tail as in adults, except that the outer upper middle and greater wing coverts are terminally banded with yellowish white, then black, and then yellowish white, while in subsequent plumages the black band dividing the light margin is wanting; the entire underparts are light yellowish white (yellowest on the abdomen) finely barred with dusky gray, the bars narrow and close together on the chin and throat, wider and more broadly spaced on the breast, upper abdomen, and flanks, the middle of the belly unbarred. This plumage is replaced by a complete postjuvenal molt, which brings on the next feathering.

2. Immature plumage: Forehead, crown, occiput, nape, and upper back bluish slate-gray, a whitish loreal line present, but no yellow or greenish on the forehead as in adults; lower back, rump, and upper tail coverts green as in adults; wings and tail as in adults, but with the margins of the coverts with a black line as in juvenals; underparts halfway between the juvenal and adult condition—chin whitish, throat, lower breast, and abdomen bright yellow, the upper breast with a pale orange wash; the breast, upper abdomen, sides, and flanks barred with dusky, the bars more widely spaced than in younger birds. This is finally replaced by the adult plumage.

3. Adult plumage: Characterized by the absence of any bars on the underparts and the presence of a yellow frontal stripe, yellow superciliaries, and a greenish wash on the forehead.

The breeding season in southern Kenya Colony appears to be unknown; in north-central Tanganyika Territory it is in December and early in January.

TELOPHORUS DOHERTYI (Rothschild)

Laniarius dohertyi Rothschild, Bull. Brit. Orn. Club, vol. 11, p. 52, 1901: Kikuyu, Kenya Colony.

Specimens collected: 1 male, Escarpment, Kenya Colony, September 8, 1912.

Soft parts: Bill black, feet and claws gray.

This beautiful bush-shrike is an inhabitant of the dense mountain forests of western Kenya Colony and of the highlands of the eastern Belgian Congo. It has been taken on the Kikuyu Escarpment at 6,500 to 8,000 feet, in the Nyeri–Aberdare Forest at 7,000 feet, on

Mount Elgon at 6,500 feet, and Kijabe, Molo, Elgeyu, Chepalunga Forest, Sotik, Kericho, Mbarara, Kegezi, Maraquet, and Kakamega in Kenya Colony. It seems not to occur in Uganda, the country being too low, but reappears in the Kivu district. Nor does it reach as far northeast as Mount Kenya, and I know of no records from Ruwenzori.

Van Someren notes that the Kivu birds may prove to be separable on the basis of larger size and deeper red on the throat and forehead. This would not be surprising, as the two groups are geographically isolated, all of Uganda intervening between them. Granvik's suggestion [21] that the Elgon birds may be separable from those of the Kikuyu Escarpment is, as he himself admits, quite improbable.

The present specimen is molting in the tail but is otherwise in good plumage. Its dimensions are as follows: Wing, 80; tail, 73; culmen, 17; tarsus, 29.5 mm.

Nothing is known of the habits of this bird other than that it is entirely restricted to dense bushes and thickets in fairly high altitudes.

MALACONOTUS POLIOCEPHALUS APPROXIMANS (Cabanis)

Archolestes approximans Cabanis, *in* von der Decken, Reisen in Ost-Africa in 1859–61, etc., vol. 3, p. 27, 1869: Dalaon River, Usambara, Tanganyika Territory.

Specimens collected: 1 adult unsexed, Tana River, 1,200 feet, Kenya Colony, August 15, 1912.

Soft parts: Iris yellow; bill brownish black shading to horn color on the sides and below; feet and claws pale bluish gray.

The systematics of this bush-shrike have been investigated by Neumann,[22] and, as the limited material available to me substantiates his conclusions, I assume that his work is correct in regard to some of the other races which I have not seen. He recognizes six forms of *Malaconotus poliocephalus*, to which a seventh, *interpositus*, has been added subsequently by Hartert.[23] Other workers, especially Zedlitz and van Someren, have since added to our knowledge of the distribution of these forms, not, in all cases, with harmonious results, and the following summary represents the present consensus of opinion:

1. *M. p. poliocephalus:* Western Africa from Senegal to Cameroon. This race has the underparts uniform sulphur-yellow with a rather faint, indistinct chestnut patch on the breast; wings, 122 mm.

2. *M. p. catharoxanthus:* The eastern Sudan from Darfur and Kordofan to the Bahr el Ghazel (south to the Niam-niam country)

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[21] Journ. für Orn., 1923, Sonderheft, pp. 136–137.

[22] Journ. für Orn., 1905, pp. 225–227.

[23] Bull. Brit. Orn. Club, vol. 29, p. 36, 1911.

and Sennar, and to Uganda, east to Eritrea, Bogosland, and the drainage basin of the Blue Nile in Ethiopia. Said to occur in northern Kavirondo on the Uganda-Kenya border as well. Slightly larger than the nominate form (wings, 127 mm) and without even a trace of chestnut on the breast, agreeing in this respect with the Angolan form *monteiri*.

3. *M. p. schoanus:* Ethiopia and northern Kenya Colony, from the Hawash region and the Shoan lake region, to the Omo Valley and the Upper Webi Schebelli region, south through the Rendile country to the Northern Guaso Nyiro River in Kenya Colony and to Turkanaland in northeastern Uganda. This race has a very distinct, deep chestnut pectoral band sharply marked off from the yellow throat and abdomen; wings, 117–122 mm.

4. *M. p. approximans:* From southern Somaliland and coastal Kenya Colony inland along the Tana River to the southern Ukamba and Kikuyu districts, south to northeastern Tanganyika Territory (Pangani River and Dar es Salaam). Very much like *schoanus* but smaller; wings, 95–112 mm.

5. *M. p. interpositus:* The country northwest of Lake Tanganyika, Belgian Congo. Said to be intermediate between *approximans* and *catharoxanthus* and very similar to *poliocephalus*, from which it differs only in having the chestnut band on the breast more distinct and less extensive, that is, more narrowly confined to the pectoral area. Hartert[24] writes that this form must be confirmed by further research. Van Someren[25] records four birds from Mount Moroto and Meuressi, Turkwell, Uganda, as belonging to this form, and says: "One cannot distinguish my four birds from typical *M. interpositus*, yet as they occur in the same locality as *M. p. schoanus*, it seems to me that they must rank as a species or be united. I prefer for the time being to keep them separate." I can not help but doubt the correctness of van Someren's identification and suspect, from the localities, that his birds are intermediates between *catharoxanthus* and *schoanus*, their geographical neighbors.

6. *M. p. blanchoti:* Tanganyika Territory from Dar es Salaam inland to Mwanza, south through Mozambique, Nyasaland, eastern Rhodesia (Gazaland, etc.) to the Transvaal, Zululand, Natal, and Pondoland. This form differs from *approximans* in having the chestnut color on the breast much paler, but still distinct, that is, not faint as in *poliocephalus;* wings, 110 mm.

7. *M. p. monteiri:* Angola, probably east to the Katanga. This form differs from all the others in that it has a white patch behind the ear coverts and has the eye completely surrounded by white. It lacks

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[24] Nov. Zool., vol. 27, p. 452, 1920.

[25] Nov. Zool., vol. 29, p. 121, 1922.

the chestnut on the breast. Van Someren considers this as a distinct species with *catharoxanthus* as a race. Sclater[26] also inclines to consider it as a full specific form. This may be, but *catharoxanthus* is nearer to the *poliocephalus* group and is to be kept with that aggregate.

Several writers have claimed that *schoanus* and *approximans* were not constantly different in size and that the two could not be maintained as subspecific entities. However, those writers who advocated "lumping" the two made the mistake of assuming that birds from extreme northern Kenya Colony were typical *approximans*, while, as a matter of fact, they are really *schoanus*. Needless to say, there are many intermediate birds in the northern half of Kenya Colony, but this is just what one should expect. Lynes[27] has found the same condition in the Sudanese *catharoxanthus*, as his birds from western Kordofan and Darfur—

> * * * agree with specimens from the Bahr el Ghazal, Upper White and Blue Niles, and it must also be said with a good many from the reputed ranges of *monteiri* and *poliocephalus*. It is clear that while the three races are distinguishable in the aggregate, there is much inconstancy in their distinctive characteristics, even in the remoter parts of their respective ranges. If, as is probable, the range of the species is continuous throughout the savanna belt, there must in any case be intermediates.

Sclater[28] uses the name *hypophyrrhus* Hartlaub for the southeast African race. I have followed Neumann's evidence and conclusions[29] in calling this form *blanchoti*.

The East African gray-headed bush-shrike is a widely distributed, but not abundant, bird. It is never found in numbers in any one locality.

The single specimen collected has the following measurements: Wing, 97; tail, 112; culmen, 28.5; tarsus, 34.5 mm. It is in fairly fresh plumage.

MALACONOTUS POLIOCEPHALUS SCHOANUS Neumann

Malaconotus poliocephalus schoanus NEUMANN, Orn. Monatsb., 1903, p. 89; Hawash district, Ethiopia.

SPECIMENS COLLECTED:

1 unsexed, Errer, Ethiopia, September 1, 1911 (Ouellard coll.).
1 unsexed, Ourso, Ethiopia, September 11, 1911 (Ouellard coll.).
1 adult male, 1 adult female, Gato River near Gardula, Ethiopia, April 11–14, 1912.
1 adult male, Endoto Mountains, south, Kenya Colony, July 24, 1912.

The range and characters of *schoanus* have been dealt with in the discussion of *approximans* and need not be repeated here. Inasmuch as this race is based on size, the measurements are recorded in table 60.

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[26] *In* Shelley, The birds of Africa, vol. 5, pt. 2, p. 414, 1912.

[27] Ibis, 1925, p. 75.

[28] Systema avium Æthiopicarum, pt. 2, p. 636, 1930.

[29] Orn. Monatsb., vol. 11, pp. 87–91, 1903.

Like all the races of *Malaconotus poliocephalus*, the present one is a denizen of the acacia scrub, where it lives in the denser thickets. Practically nothing has been recorded of its habits other than that it is shy and has a loud flutelike call.

TABLE 60.—*Measurements of five specimens of* Malaconotus poliocephalus schoanus

Locality	Sex	Wing	Tail	Culmen	Tarsus
ETHIOPIA:		*Mm*	*Mm*	*Mm*	*Mm*
Ourso	Unsexed	118.0	106.5	28.0	32.5
Errer	do	113.0	109.0	28.5	34.0
Gato River	Male	121.5	115.0	29.0	34.0
Do	Female	118.0	110.0	----------	34.5
KENYA COLONY: Endoto Mountains	Male	110.0	109.0	29.0	34.5

RHODOPHONEUS CRUENTUS CRUENTUS (Hemprich and Ehrenberg)

Lanius cruentus HEMPRICH and EHRENBERG, Symbolae physicae, folio C, pl. 3, figs. 1, female, 2, 3 males, 1828: Arkiko near Massowa.

SPECIMENS COLLECTED:

3 adult males, 2 adult females, 1 immature (female?), Ourso, Ethiopia, May 25–October 12, 1911 (Ouellard coll.).

1 adult male, Hawash River, Ethiopia, February 6, 1912.

The rosy-patched shrike occurs from southern Eritrea and, along the Red Sea coast, from Port Sudan, west to western Kordofan (but not to Darfur), south through Ethiopia and Somaliland to Kenya Colony and northern Tanganyika Territory, south as far as northern Ugogo. It divides into four races, as follows:

1. *R. c. cruentus:* The Red Sea Province of the Anglo-Egyptian Sudan, Eritrea, Bogosland, south to north-central Shoa (Ourso and Hawash River). In this race both sexes have the upperparts grayish with very little of a reddish tinge, the latter color being confined largely to the crown.

2. *R. c. kordofanicus:* Western Kordofan. Similar to *cruentus* but paler, more grayish above. I have seen no birds from the White Nile and cannot say which form occurs there. The White Nile birds might be expected to be intermediate between this and the nominate form.

3. *R. c. hilgerti:* Somaliland, west through Ennia and Arussi-Gallaland and extreme southern Shoa, south through Jubaland and Kenya Colony as far as the Tsavo and Athi Rivers, where it meets with the fourth form, *cathemagmenus*. This race differs from either of the first two in having the upperparts darker, with a strong crimson wash, which is not confined to the crown but extends over the nape and upper back as well.

4. *R. c. cathemagmenus:* Southern Kenya Colony from the Tsavo district through the Taru Desert and the Serengeti Plains east of Kilimanjaro to northern Ugogo in Tanganyika Territory. This race differs from the first three in that the black gorget is not confined to the females, but is present in the males as well. Females of this form are very similar to those of *hilgerti*, but, like the males, have the dorsum darker, more of a deep crimson-brown, than in *hilgerti.*

Usually subspecies merge insensibly into each other at the periphery of their respective ranges, and, consequently, when we find one that does not, but maintains its distinctive characters in undiminished strength to the very limits of its range, we may well wonder if it be not more than subspecifically distinct. This is the case with *cathemagmenus.* The males are strikingly different from those of any of the other three forms, the black gorget being a large, well-developed mark in this race and utterly absent in the others. It is worthy of note that at the Tsavo station on the Uganda Railway *hilgerti* and *cathemagmenus* meet, but specimens of both are wholly typical of their respective races. It is true that the females of the two are very similar, and, without their mates, are often extremely hard to identify.

Recently, Hellmayr[30] has given examples among the Neotropical avian family Formicariidae, of what he calls "heterogynism," which term is intended to cover variations, both specific and subspecific, which affect only the females, the males of the allied forms being indistinguishable from each other. This is not peculiar to the Formicariidae, as it is also known in some of the Icteridae, such as the red-eyed cowbirds, *Tangavius aeneus aeneus* and *T. a. involucratus*, and in some of the grackles as well. In *Rhodophoneus*, however, the opposite is true; the males are very distinct and the females very similar (that is, in *hilgerti* and *cathemagmenus*), showing that the difference in plumage may occur solely in either sex and that it may be better to change Hellmayr's term to one covering all cases where the difference is confined to one sex, regardless of which one that is.

All the seven specimens listed above are extremely abraded, and two of them are molting in the tail and wings. As far as I have been able to ascertain, nothing definite has been recorded of the breeding season of this shrike, but it probably is during May and June. Thus, Blanford[31] writes that this bird "was not rare around Annesley Bay, and was occasionally seen in Samhar and Habab, up to an elevation of about 3,000 feet, never, however, above the range of tropical flora and fauna. In December and January small families were met with, hopping along the ground, * * * in May and June, all met with were in pairs."

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[30] Journ. für Orn., 1929, Ergänzungsband 2, Festschrift Ernst Hartert, pp. 41–70.

[31] Observations on the geology and zoology of Abyssinia, pp. 342–343, 1870.

Of the western Sudanese race *kordofanicus*, Sclater[32] states that two eggs were taken by Major Dunn at Ogayeh Wells, but gives no clue as to the date. However, Sclater and Mackworth-Praed[33] list three specimens of *kordofanicus* "collected by Capt. W. H. Dunn, at Ogayeh Wells, in western Kordofan, on November 13, 1902," which may or may not suggest that the nesting season in Kordofan may be quite different from that in Ethiopia, or that the season is prolonged in both regions. As is noted below, the race *hilgerti* is known to breed in May in Ennia Gallaland.

This handsome shrike lives in the rather dry thornbush country where its bright coloration, shrill chirping notes, and general restless activity render it quite conspicuous in spite of its shyness.

The dimensions of the adult specimens obtained are given in table 61.

TABLE 61.—*Measurements of six specimens of* Rhodophoneus cruentus cruentus *from Ethiopia*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Hawash River	Male	91.0	111.0	21.5	31.0
Ourso	do	94.0	119.0	20.0	31.5
Do	do	95.0	117.0		31.5
Do	do	94.0	112.0		31.0
Do	Female	86.0	108.5	20.0	30.0
Do	do	97.5	122.0	19.0	30.0

RHODOPHONEUS CRUENTUS HILGERTI (Neumann)

Pelicinius cruentus hilgerti NEUMANN, Orn. Monatsb., 1903, p. 182: Sheikh Hussein, Somaliland.

SPECIMENS COLLECTED:

1 adult male, 1 adult female, 1 immature female, Bodessa, Ethiopia, May 25–29, 1912.
1 adult male, Sagon River, Ethiopia, June 6, 1912.
1 adult male, 1 female adult, Tertale, Ethiopia, June 11, 1912.
1 adult female, Indunumara Mountains, Kenya Colony, July 14, 1912.
1 adult male, Northern Guaso Nyiro River, Kenya Colony, August 3, 1912.
1 immature female, Lekiundu River, Kenya Colony, August 5, 1912.

Soft parts: Iris dark brown.

As already mentioned, this race is found in Somaliland, Gallaland, southern Shoa, and most of northern and central Kenya Colony, where it lives in open thornbush savannahs, going about either in pairs or in small groups, apparently more numerous in the northern than in the southern parts of its range.

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[32] *In* Shelley, The birds of Africa, vol. 5, pp. 393–394, 1912.

[33] Ibis, 1918, p. 633.

The present series are in fresher plumage than the specimens of the preceding race but, with two exceptions, are not very fresh at that. Their dimensions are given in table 62 (adults only).

Hilgert[34] suggests that *hilgerti* may be a compound aggregate containing two races, a northern Somali form and the typical *hilgerti* group, the former being noticeably paler above. As Zedlitz[35] has shown, however, age, wear, and season can account for the apparent differences noted by Hilgert.

TABLE 62.—*Measurements of seven specimens of* Rhodophoneus cruentus hilgerti

Locality	Sex	Wing	Tail	Culmen	Tarsus
ETHIOPIA:		*Mm*	*Mm*	*Mm*	*Mm*
Bodessa	Male	97.0	123.5	19.5	30.5
Sagon River	do	101.0	126.0	21.0	34.0
Tertale	do	91.0	118.0	19.0	32.5
KENYA COLONY:					
Northern Guaso Nyiro River	do	91.0	111.0	19.0	31.0
Indunumara Mountains	Female	90.0	113.0	18.0	29.0
ETHIOPIA:					
Bodessa	do	94.0	117.5	19.0	31.0
Tertale	do	90.0	112.5	20.0	32.0

This race appears to have a wider altitudinal range than the typical form. Lort Phillips[36] "found this * * * shrike plentiful from the Berbera Plains up to about 8,000 feet on Wagga Mountain."

Erlanger[37] found a nest on May 26 at Gobele in Ennia-Gallaland. It contained three eggs, pale green in color, spotted with earth brown, and measuring 24 by 18 mm. The nest was a rather flimsy, flat platform, something like a dove's nest, and was built in a thick bush. The breeding season is apparently more extensive than this one nest record would indicate, as on January 8, in Arussi-Gallaland, Erlanger saw a pair of these shrikes with newly fledged young.

Mearns shot what he assumed to be a mated pair at Tertale on June 11, while on May 25 at Bodessa, he killed an adult female and a young bird with the same shot and entered the latter in his notes as possibly the progeny of the adult.

As the juvenal plumage of this bird appears not to have been described, the following notes may be worth recording: The young bird from Lekiundu River is a juvenal bird with the tail only three-quarters grown. It resembles the adult on the upperparts, even to the possession of the pinkish-red rump patch but is grayer generally and differs in having the remiges and their greater coverts edged with tawny-buff. It has the superciliary stripe and loreal spot only indistinctly developed, not contrastingly whitish as in the adult. On the underparts it differs from the adult in lacking the black gorget and the red median band. The pectoral region is somewhat duskier than the rest of the underparts and is grayish buff; the chin and upper throat pure white; the sides, flanks, and under tail coverts buffy; the middle of the abdomen whitish.

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[34] Katalog der Collection von Erlanger in Nieder-Ingelheim, p. 270, footnote, 1908.

[35] Journ. für Orn., 1915, pp. 57–58.

[36] Ibis, 1898, p. 405.

[37] Journ. für Orn., 1905, pp. 695–696.

The young bird from Bodessa is older and has the crown and upperparts generally as reddish as in fully adult birds. It is just beginning to show the black gorget and the reddish median band. The distribution of the latter color is unusual in that it extends to the sides of the breast, which are a mixture of tawny and pinkish. It takes two years to acquire the fully adult plumage, but more observations and data are needed on this point.

NICATOR CHLORIS GULARIS Finsch and Hartlaub

Nicator gularis Finsch and Hartlaub, Die Vögel Ost-Afrikas, p. 360, 1870: Tete, Zambesi.

Specimens collected: 1 "male" (=female), 1 unsexed (=female), Tana River, Kenya Colony, August 15–16, 1912.

Soft parts: Iris grayish brown; eye ring greenish yellow; bill brownish black shading to grayish on sides and below; angle of mouth greenish yellow; feet plumbeous; claws brownish gray.

Nicator chloris has two well-marked races, the typical one, with yellowish auriculars and with a grayish wash on the throat and breast, and the present form, with buffy ear coverts, throat, and breast. The distribution of these races is as follows:

1. *N. c. chloris:* Western Africa from Senegal, Portuguese Guinea, Sierra Leone, Liberia, Gold Coast, Southern Nigeria, Cameroon, Gaboon, and the Belgian Congo eastward to the Katanga and across Uganda to the western slopes of Mount Elgon.

2. *N. c. gularis:* Eastern Africa, chiefly the low coastal plain from southern Jubaland south to northern Zululand, inland to Gazaland and to Nyasaland. It may be that *gularis* really consists of two races, a lighter, more greenish-backed, southern form and a northern race. The latter has not been separated from the former nomenclaturally as yet, but I find that the present two birds and another from Mount Garguess are darker, less greenish above than two from Morogoro, Tanganyika Territory. Furthermore, van Someren[38] writes that while he has no typical (Zambesi) birds for comparison, his series from Lamu, Sagala, Mombasa, and Bura, are "not as green on the back as depicted in the plate in Shelley, vol. v, pt. 2." With-

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[38] Nov. Zool., vol. 29, p. 114, 1922.

out topotypical material I prefer to let the matter rest and hope that someone else will look into it.

Chapin [39] has discussed the relationships of this curious genus and has come to the conclusion that it is one of the links between the Laniidae and the Pycnonotidae. In this he is probably correct, but the birds stand out pretty well from the members of any other genus.

This species is a denizen of dense bush and is difficult to observe, not only because of the rather impenetrable nature of its habitat, but also on account of its exceedingly timid disposition. It is a rather silent bird, except when breeding.

As far as I know, the nest of this bird has not been found in Kenya Colony, but at Beira, Mozambique, Sheppard discovered one with three eggs on December 17, and Boyd Alexander shot a breeding male on the Zambesi in December.

The typical race is known to nest in June in Uganda. Thus, van Someren [40] writes that *chloris* is—

> * * * a common forest-species. It frequents the undergrowth and the lower branches of the taller trees. A nest was obtained in June, composed of rootlets and fibres, and contained two eggs of a dirty cream-pink spotted and freckled with lilac-grey and darker grey, the surface glossy. Young birds were taken in July and September.

The two specimens collected are probably females, as they are small, having the following dimensions: Wing, 89–92.5; tail, 94–96; culmen, 18; tarsus, 29 mm.

Family PRIONOPIDAE, Wood-shrikes

PRIONOPS POLIOCEPHALUS POLIOCEPHALUS (Stanley)

Lanius poliocephalus Stanley, in Salt, Travels in Abyssinia . . ., Appendix, p. 1 (= 50), 1814: "Abyssinia," *errore*, Mozambique (*vide* Neumann, Journ. für Orn., 1905, pp. 216–217.)

Specimens collected:

1 unsexed, Tana River, camp 3, Kenya Colony, August 16, 1912.
1 adult male, Tana River, at mouth of Thika River, Kenya Colony, August 24, 1912.
1 male ?, 1 adult female, Tana River at Bowlder Hill, Kenya Colony, August 28, 1912.

Soft parts: Adult male—iris and eye wattles yellow; bill black; feet orange-red; claws brownish black.

This helmet-shrike occurs from the Transvaal, Zululand, Swaziland, Bechuanaland, Damaraland, and Namaqualand north to Angola, the Katanga, and to southwestern Uganda and the Ukambani, Loita, Kitui, Teita, and Mombasa districts of southern Kenya Colony. The typical race occurs in East Africa south to Zululand and the eastern Transvaal, while the western part of the range (Angola, Namaqualand, Damaraland, Bechuanaland, and the western Transvaal) is inhabited by *talacoma* (if that form be valid). Roberts[41] writes that *talacoma* is distinct. Grote[42] considers a specimen from Obab, northern Southwest African Protectorate, as typical *poliocephalus.*

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[39] Amer. Mus. Nov., No. 17, pp. 9–11, 1921.
[40] Ibis, 1916, p. 390.

In Cameroon two closely related forms, *martensi* and *adamauae*, occur. These two seem to be only subspecifically distinct from *poliocephalus;* in fact, *adamauae* was described as a race of the present species. These two forms I have not seen, and, at any rate, they need not concern us here.

The unsexed bird listed above is a subadult specimen and has the bluish-gray area restricted to the occiput, the crown being white like the forehead. It is in very worn plumage and shows but little white on the upper aspect of the wings.

The adult male has the following dimensions: Wing, 107; tail, 87.5; culmen, 16; tarsus, 22 mm. The adult female: Wing, 105; tail, 81; culmen, 19; tarsus, 22.5 mm.

This species occurs rather sparingly and somewhat sporadically in the southern part of Kenya Colony, being absent from large tracts of apparently suitable country. It was not represented in van Someren's almost complete collection of south Kenyan and Ugandan birds,[43] and it has been either missed or overlooked by most collectors. Van Someren[44] did record this species from Gondokoro, but the specimen in question was probably wrongly identified and was most likely *P. concinnatus*, the form he later[45] recorded from that area.

I have found no published data on the breeding season of this bird in Kenya Colony, but Böhm found a nest with two eggs on March 18 at Kakoma, Tanganyika Territory.[46] and Schuster observed newly fledged young on July 22 in the Unyamwesi district.[47] Doggett procured a female with a brood of young at Mulema, Uganda, during his stay at that place from March to May.

Besides the actual specimens collected, Mearns noted this helmet-shrike as follows: Tana River, August 15–16, 20 birds; Thika River, August 23–28, 30 seen.

Since the above was written van Someren[47a] has reported this helmet-shrike from the Machakos area; Loita; Nairobi; and the Tsavo-Masongoleni district.

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[41] Ann. Transvaal Mus., vol. 10, p. 86, 1924.

[42] Journ. für Orn., 1922, p. 44.

[43] Reported on in Nov. Zool., vol. 29, pp. 1–246, 1922.

[44] Ibis, 1916, p. 387.

[45] Nov. Zool., vol. 29, p. 108, 1922.

[46] *Vide* Reichenow, Die Vögel Afrikas, vol. 2, p. 529, 1903.

[47] Journ. für Orn., 1926, p. 714.

[47a] Nov. Zool., vol. 37, p. 302, 1932.

PRIONOPS CRISTATA CRISTATA Rüppell

Prionops (*Lanius*) *cristatus* RÜPPELL, Neue Wirbelthiere, zu der Fauna Abyssinien gehörig, etc., Vögel, Lief. 183, p. 30, pl. 12, fig. 2, 1837: Coast at Massawa.

SPECIMENS COLLECTED:

1 unsexed, Ourso, Ethiopia, September 11, 1911 (A. Ouellard coll.).
1 adult male, Black Lake Abaya, Ethiopia, March 26, 1912.
4 adult males, 4 adult females, 2 immature females, Bodessa, Ethiopia, May 19–22, 1912.
1 adult male, 1 immature male, 1 adult female, Turturo, Ethiopia, June 15, 1912.

Soft parts: Adult male—iris grayish white; eye wattles yellow; feet orange, claws olive tipped with black; bill black. Another adult male—iris grayish blue with an outer ring of yellow; still another—iris and eye wattles yellow. Adult female—iris gray to bluish gray with an outer ring of yellow; bill black; feet orange, claws dark grayish brown. Another adult female—iris and eye wattles yellow. Immature female—eye wattles black.

I consider *P. c. omoensis* Neumann[48] a synonym. In his notes on the types in the Tring Museum, Hartert[49] tentatively synonymizes *omoensis* with *cristata*. The former is said to have the occiput and nape darker than in birds of northern Ethiopia (typical *cristata*). However, Hartert writes that of Neumann's two specimens of *omoensis*—

> * * * the nape is much darker in one specimen, and a specimen from Salamona (G. Schrader leg.), as well as another from Mulu (Saphiro leg.), have it quite as dark as the one of Neumann's two specimens. * * * In no case were two specimens sufficient to establish such a closely allied subspecies, and we must await further material from the Omo * * * to establish Neumann's "*omoensis*." (A series collected by Dr. van Someren seems to confirm *omoensis*, but we shall hear more about this from him before long.)

Turning to van Someren's discussion[50] we find that of his series—

> seven birds agree absolutely with the type of Neumann's *omoensis*, except that they are larger, wings 115–120 mm.; in other words, they are very dark grey on the posterior parts of the head and hind part of crest tinged gray, throat dark. Thus we have seven birds collected south of Neumann's type locality agreeing with his bird. His birds were compared with a series of nine birds * * * from Eritrea and South-east Ethiopia, which are all pale-headed with whitish throats, *except two*, one from Eritrea and one from South-east Ethiopia, which approach very closely the southern birds. Thus the typical birds vary, and in so doing render the validity of *P. c. omoensis* questionable. Five other birds, all collected at one spot to the southwest of Lake Rudolf on the Turkwell River differ from the dark-headed birds by having the hind part of the crest cream-colour, the hind part of the sides of the head and the nape brownish ashy, and in having the throat tinged brownish. Wings, 121–123 mm. They are fully adult and in fresh plumage. If, therefore, birds from the type locality differ,

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[48] Journ. für Orn., 1905, p. 216: Omo River between Malo and Koscha.
[49] Nov. Zool., vol. 27, pp. 452–453, 1920.
[50] Nov. Zool., vol. 29, p. 109, 1922.

and southern birds from a comparatively small area also vary, it is not unreasonable to suggest that *P. c. omoensis* is not a good race.

Dr. Hartert, in fact, is inclined to this view, but I am not in agreement with this. I suggest that *omoensis* is a good race, and that possibly there is another race inhabiting the south end of Rudolf and Baringo districts, with characters as given above.

Recently, van Someren[51] obtained seven more skins from Kaptirr, Turkwell, which he compared with his previous series, and found that the color of the hind crown and nape is variable.

I have examined 15 adult birds from southern Ethiopia (Ourso, Abaya Lakes, Bodessa, and Turturo) and Uganda, and find that the color of the occiput and nape varies from neutral gray to a slate-gray, with some plumbeous feathers mixed in. These all ought to be *omoensis*, with dark, that is, slate-gray, napes. Other recent investigators have also found "*omoensis*" to vary. Thus, Stoneham[52] notes that birds from Kitgum, Uganda, have much darker gray napes than a specimen from Karamoja (a locality nearer to the Omo drainage basin). He suggests that wear may account for the darkness of the Kitgum birds. In this he appears to have hit upon the correct solution. I have gone over my material and have found that the birds in fresh plumage have paler napes, those in abraded condition, darker, more slate grayish. Although I have examined no birds from Eritrea or northern Ethiopia, I feel confident that if due allowance be made for the condition of the plumage, the alleged differences between *cristata* and *omoensis* will disappear.

With regard to the buffy-naped birds from south of Lake Rudolf, a similar type of variation occurs in *P. concinnatus*, especially in western Kordofan. Lynes[53] described the Kordofan birds as distinct (*ochracea*), but later[54] he found the variation to be inconstant. This seems to be the case with *P. cristata* as well.

The species, then, contains three races, as follows:

1. *P. c. cristata:* Eritrea, Ethiopia, except the eastern part of the Harrar district and southern Gallaland, south through Shoa and Arussiland and the Omo region to Uganda through Turkanaland and northern Uganda to Kisingo and Kigomma, and to the northwestern part of Kenya Colony (Lake Rudolf to Lake Baringo and to Mount Elgon). The last part of its range may be inhabited by a recognizable race, but in spite of van Someren's assurance of the maturity of his birds, the characters he gives are suspiciously juvenal in nature, much like those of the type of *vinaceigularis*, the adult plumage of which was later described as *intermedius*.

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[51] Nov. Zool., vol. 37, p. 302, 1932.

[52] Ibis, 1928, p. 264.

[53] Bull. Brit. Orn. Club, vol. 41, p. 18, 1920.

[54] Bull. Brit. Orn. Club, vol. 43, p. 98, 1923.

This race has long crest feathers, the posterior of which are curled slightly inward and forward; wings, 110–125 mm.

2. *P. c. melanoptera:* Western Somaliland, west to Harrar in Ethiopia, south through the Garre-Lewin country and southern Gallaland to the Juba River and, in the west, to the Endoto Mountains, in Kenya Colony. Differs from *cristata* in having a much shorter frontal crest, hardly longer than in *P. poliocephala*, the occipital crest also shorter and not curled inward and forward; wings, 102–118 mm.

3. *P. c. vinaceigularis:* The Taru Desert, Teita and Taveta districts of Kenya Colony, south to the Kilimanjaro region, Tanganyika Territory. Similar to *melanoptera* but slightly smaller, wings 100–114 mm, and young with the occiput, nape, chin, and upper throat washed with vinaceous.

P. concinnatus is specifically distinct.

The series collected by the Frick expedition contains several young birds that are of interest because of their plumage variations. It appears that the juvenal feathers are worn but a short time and are then replaced by a set that resembles those of the adult, except that the birds do not develop the long occipital crest feathers until the second adult plumage. Juvenal birds are dark fuscous-brown on the back, the feathers edged with whitish, and are white on the entire head and nape. One of the young birds examined has the chin and throat either stained or lightly washed with pale vinaceous-gray and has a dark vinaceous-gray band across the occiput, recalling some of the features of the corresponding stage of *vinaceigularis.*

The birds may breed in first adult plumage, that is, without the occipital crests, but the evidence for this is not too good. Mearns collected a young bird at Turturo on June 15 and also an older female (in first adult plumage) and wrote on the label of the latter "parent of young specimen." However, this species usually stays in small flocks, and inasmuch as the young bird is in postjuvenal molt, the two specimens may have merely been shot from the same flock and not been otherwise related.

Several of the adults taken at Bodessa, as well as the male from Black Lake Abaya and the one from Turturo, are in molt, the ecdysis affecting the remiges and rectrices. The series is not sufficient to prove the point, but it suggests that the caudal molt begins with the middle and the outermost rectrices and proceeds from those two centers. The wing molt begins at the wrist joint and presents no unusual features.

The size variations of the adults may be seen from the following figures: Males have wing lengths of from 110 to 118.5 mm (average, 115.6); females, 112–121 mm (average, 118.5).

Zedlitz[55] found the breeding season in Eritrea and northern Ethiopia to be in the northern spring. Antinori recorded the mating season to be in March.

PRIONOPS CRISTATA MELANOPTERA Sharpe

Prionops melanoptera SHARPE, Bull. Brit. Orn. Club, vol. 11, p. 46, 1901: Fer Libah, Somaliland.

SPECIMENS COLLECTED: 2 adult males, 2 adult females, 1 immature male, 1 immature female, Endoto Mountains, Kenya Colony, July 21–24, 1912.

These specimens are referred to *melanoptera* more by a process of elimination than by any characters. Still, the identification is probably correct, as the birds agree with the descriptions in literature of this race, which I have not otherwise seen. As far as I have been able to discover, *melanoptera* has not been recorded before from Kenya Colony, and the present examples indicate that this bird is another member of the Somali avifauna that extends westward across southern Gallaland to the Rendile country and thence southward to the Endoto Mountains.

The adults vary in the color of the occiput and nape just as in *cristata*. The two males have wings 108 and 113 mm in length, and the females 112 and 115.5, respectively.

The young male is in the postjuvenal molt and shows that the back is brown in the first pennaceous plumage in this form as in the nominate one.

SIGMODUS RETZII GRACULINUS (Cabanis)

Prionops graculinus CABANIS, Journ. für Orn., 1868, p. 412: Mombasa (cf. Finsch and Hartlaub, Die Vögel Ost-Afrikas, p. 368, 1870.)

SPECIMENS COLLECTED:

1 adult male, Tana River, 1200 feet, Kenya Colony, August 15, 1912.
1 adult male, 2 immature males, Tana River at mouth of Thika River, Kenya Colony, August 26, 1912.

Soft parts: Iris orange-red; eye wattles and basal half of bill red, terminal half of bill yellow, shading into the red base; feet red, claws yellowish brown. The eye wattles are brownish and the feet paler red in immature birds.

Zedlitz[56] has reviewed the races of the red-billed helmet-shrike and recognizes six forms. I have not sufficient material available to decide for myself, but as far as it goes the series upholds Zedlitz's conclusions. According to him the typical race occurs in Southwest Africa north to Benguella; *nigricans* replaces it in northern Angola; *tricolor* in southern and central Tanganyika Territory; *intermedius* in the districts immediately adjacent to Lake Victoria; *graculinus* in northeastern Tanganyika Territory and southern and central Kenya Colony; and *neumanni* in southern Somaliland. The last-named form is said to be like *graculinus* in color, but smaller in size. I have seen no undoubted Somaliland birds, but one specimen in the United States National Museum from the collection of A. Donaldson Smith, without data, may have come from southern Somaliland, as it has a wing length of 124 mm, as large as that of *graculinus.* If it came from Somaliland, it is important in that it casts doubt on the validity of *neumanni*, but it may have been part of a collection bought by Smith in East Africa to fill out his own series. It is noteworthy that in his account of Smith's Somaliland collection, Sharpe[57] does not list *Sigmodus retzii.*

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[55] Journ. für Orn., 1910, pp. 795–796.
[56] Journ. für Orn., 1915, pp. 51–53.

These six races may be told as follows: *graculinus* and *neumanni* differ from each other chiefly in size, the latter having a wing length of from 114 to 120 mm as against 120 to 130 mm in the former, and both differ from all the other races in that neither of them has a broad white band on the inner webs of primaries, while *retzii*, *nigricans*, *tricolor*, and *intermedius* have this band well developed. (It is noticeable only on the underside of the wings.) These four subspecies differ in the color of the back, inner remiges, and upper wing coverts. These feathers are dusky grayish brown in *retzii;* more grayish, rather brownish ashy gray in *nigricans;* hair brown in *intermedius;* and pale drab in *tricolor.*

The two adults collected by the Frick expedition are very similar, but one has a very narrow, short white line on the margin of the inner web of each primary, while the other has no white. Both the young birds have a narrow white band on the inner webs of the primaries, the band being considerably more prominent in one bird than in the other, but in neither is the band even a third as wide as in a corresponding specimen of *tricolor.* Van Someren[58] found that in his series of 14 birds from Kenya Colony "some adults show traces of white on the inner webs of the primaries, and all the young and immature birds exhibit this character, indicating a very close relationship to *S. r. intermedius* and *tricolor.*"

Roberts[59] has proposed a genus *Eressornis* for *Sigmodus retzii* on the basis of the longer rictal bristles. "In the typical *Sigmodus*", he says, "the base of the bill is exposed; but in *S. retzii* (Wahlberg) the base of the bill is hidden by the frontal bristles, the longer of which extend over the nostrils, and * * * would therefore place it in a new genus under the name *Eressornis.*" I have compared this species with *caniceps*, the genotype of *Sigmodus*, and find that the difference is by no means so great as a perusal of Roberts's diagnosis would indicate. I do not recognize *Eressornis* as a valid genus.

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[57] Proc. Zool. Soc. London, 1895, pp. 457–520.

[58] Nov. Zool., vol. 29, p. 109, 1922.

[59] Ann. Transvaal Mus., vol. 8, p. 248, 1922.

Nothing appears to have been recorded of the breeding habits of this bird. It is a denizen of dense forests, where it is usually found in pairs or small groups of from three to seven birds.

EUROCEPHALUS RÜPPELLI RÜPPELLI Bonaparte

Eurocephalus rüppelli BONAPARTE, Rev. Mag. Zool., 1853, p. 440: White Nile (*vide* Zedlitz, Journ. für Orn., 1915, p. 47).

SPECIMENS COLLECTED:

10 males, 3 females, Gato River near Gardula, Ethiopia, April 3–May 9, 1912.
1 male, east of Lake Stefanie, Ethiopia, April 26, 1912.
1 female, Bodessa, Ethiopia, May 22, 1912.
1 male, Tertale, Ethiopia, June 10, 1912.
1 male, Endoto Mountains, south, Kenya Colony, July 23, 1912.
1 male, Marsabit Road, 25 miles north of Northern Guaso Nyiro River, Kenya Colony, July 30, 1912.
1 male, Lekiundu River, Kenya Colony, August 4, 1912.
1 male, 5 females, Tana River, Kenya Colony, August 14–23, 1912.
1 male, Athi River near Juja Farm, Kenya Colony, August 30, 1912.
1 male, Indian Store, south of Donio Sabuk, Kenya Colony, August 30, 1912.

E. r. deckeni Zedlitz and *E. r. fischeri* Zedlitz are synonyms. Van Someren[60] considers these two names as synonyms of *E. r. erlangeri*, a conclusion in which he is mistaken.

Zedlitz[61] reviewed the variations of this species and concluded that there were six valid races, four of which are new at that point. First of all, he considered *rüppelli* and *anguitimens* conspecific and, as the latter is the older name, used it for the species. According to his arrangement, *anguitimens*, the only form with a brownish rump and brown upper tail coverts, inhabits South Africa, which is correct, and the other five, with white rumps and upper tail coverts, range from southwestern Tanganyika Territory north through East Africa and Uganda to the Anglo-Egyptian Sudan, Ethiopia, and Somaliland. I find not the slightest sign of intergradation between *anguitimens* and any of the white-rumped races, and keep them specifically distinct. Sclater and Mackworth-Praed[62] and van Someren have also reached this conclusion.

We may restrict our attention to the white-rumped birds, for which the name *rüppelli* is the oldest and must be used. Zedlitz[63] splits this group up as follows: *rüppelli*, a form of rather small size, wings 119–126 mm, the underparts washed with pale brownish, inhabits the Mongalla and Upper White Nile regions of the Anglo-

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[60] Nov. Zool., vol. 29, p. 108, 1922.
[61] Orn. Monatsb., vol. 21, pp. 58–59, 1913.
[62] Ibis, 1918, p. 640.
[63] Journ. für Orn., 1915, pp. 46–50.

Egyptian Sudan and the West Nile Province of northwestern Uganda; *erlangeri*, a darker-backed, larger bird, wings 127–135 mm in the male, 122–132 mm in the female, and with the underparts pure white with very distinct dark-brown side patches, occurs in northern Somaliland and throughout Ethiopia; *deckeni*, the smallest of the races, wings 116–122 mm, similar to *erlangeri* in color on the underparts, but lighter on the back, is said to live in southern Somaliland and the coastal districts of Kenya Colony south to the mouth of the Tana River; *fischeri*, a race with the dorsal coloration of *deckeni*, the ventral color of *rüppelli*, and larger than either, wings 126–135 mm in the males, 124–127 mm in the females, inhabits northeastern Tanganyika Territory north to the Ukamba district of Kenya Colony; while the last form, *böhmi*, which is like *fischeri*, but paler above, is known from southwestern Tanganyika Territory.

Of the so-called forms of *rüppelli*, I have examined 56 specimens from the ranges of all five and find it possible to identify and recognize only three—*rüppelli*, *erlangeri*, and *böhmi*. Sclater and Mackworth-Praed and van Someren likewise find *deckeni* and *fischeri* untenable, but they differ in their disposition of these names. According to the latter, *erlangeri* is the race inhabiting all of Ethiopia, Somaliland, Kenya Colony, and northeastern Tanganyika Territory, and of this form *deckeni* and *fischeri* are synonyms. Of *rüppelli* van Someren states that it is smaller than "the other more southern forms", meaning, I presume, *deckeni*, *fischeri*, and *böhmi*. I have examined enough material of *rüppelli* from near Gondokoro to satisfy myself that it is not smaller than any East African birds, and, on the other hand, I find that Ethiopian birds are uniformly larger than examples from Kenya Colony. Therefore, I consider birds from the latter country to be the same as Gondokoro birds and different from those of Ethiopia. This is essentially the same decision as that made by Sclater and Mackworth-Praed, who find, as I do, that—

> * * * the coloration seems to vary considerably with the time of year, and the size is also not a reliable guide. * * * We, therefore consider that *E. r. rüppelli* ranges from Mongalla through British East Africa, and from Victoria Nyanza to the mouth of the Tana River to the eastern half of German East Africa. On higher ground, as, for instance, near Kilimanjaro and Kenia—the birds have a tendency to be slightly larger and darker.

The range of *erlangeri* as given by Zedlitz is correct; that of *rüppelli* should be extended to include the area he assigns to *fischeri* and *deskeni* and to extreme southern Shoa, while that of *böhmi* should be extended northeast to Dodoma, whence I have seen two specimens (Loveridge collection).

The present specimens from Gato River near Gardula and from Bodessa and Tertale appear to be the first typical *rüppelli* recorded from Ethiopia since the description of *erlangeri.* Though records previous to Zedlitz's paper were referred to *rüppelli*, the name was used in a much wider sense. Neumann,[64] however, met with the species at Suksuki River, Mole River, Lake Zwai, and Lake Abaya and stated that there was no difference between these birds and others from East Africa. The typical form appears to be the dominant one in southern Shoa, but *erlangeri* occasionally occurs there as well, or at least large individuals occur that are more like *erlangeri* than *rüppelli.*

The measurements of the present series are given in table 63.

TABLE 63.—*Measurements of 27 specimens of* Eurocephalus rüppelli rüppelli

Locality	Sex	Wing	Tail	Culmen	Tarsus
ETHIOPIA:		*Mm*	*Mm*	*Mm*	*Mm*
Gato River	Male	121.0	92.0	----------	22.0
Do	do	124.0	95.5	17.0	22.5
Do	do	122.0	96.0	16.0	22.0
Do	do	122.5	95.0	18.0	22.0
Do	do	120.0	93.0	17.0	20.5
Do	do	125.0	96.0	17.5	23.0
Do	do	123.0	98.5	18.0	22.0
Do	do	123.0	97.5	18.0	23.5
Do	do	125.0	95.0	17.0	21.0
Do	do	123.0	103.0	18.0	23.5
East of Lake Stefanie	do	121.0	91.5	17.0	20.0
Tertale	do	121.0	92.5	16.5	22.5
KENYA COLONY:					
Endoto Mountains, south	do	118.5	86.0	17.0	22.0
Marsabit Road	do	122.0	92.0	18.0	21.5
Lekiundu River	do	123.0	91.0	17.0	22.5
Tana River	do	122.0	90.0	17.0	22.0
Athi River	do	123.5	95.0	16.0	22.0
South of Donio Sabuk	do	128.5	99.0	17.0	22.5
ETHIOPIA:					
Gato River	Female	127.0	99.0	17.0	23.5
Do	do	126.0	98.0	18.0	22.5
Do	do	126.5	96.5	18.5	23.0
Bodessa	do	126.0	98.0	17.0	23.0
KENYA COLONY:					
Tana River	do	121.0	92.5	17.5	22.0
Do	do	129.0	101.0	18.0	21.5
Do	do	122.0	88.0	17.0	22.5
Do	do	128.0	101.0	18.0	23.0
Do	do	119.0	90.0	18.0	22.5

Like all the forms of this genus, the present bird is a denizen of the acacia-mimosa thornbush country and also of the rather sparse woodlands.

Eight of the birds taken at Gato River are in molt in the wings and tail, as are also three others from east of Lake Stefanie, the Marsabit

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[64] Journ. für Orn., 1905, p. 215.

Road, and the Tana River. The others are in rather worn plumage. The molting bird from the Tana River is an immature specimen in an advanced stage of the postjuvenal molt. Only a few of the brown juvenal feathers are left on the forehead and crown, but being surrounded by the new white ones they are rendered very conspicuous.

The breeding season is in March in Kenya Colony, in April and May in Ethiopia.

In Mearns's diary I find the following entries referring to this bird: Endoto Mountains, July 19–24, 150 birds seen; Er-re-re July 25, 50 noted; Le-se-dun, July 26, 50; Malele, July 27, 50 individuals; 18 to 45 miles south of Malele, July 28–30, 30 birds; Northern Guaso Nyiro River, July 31–August 3, 75 seen; Lekiundu River, August 4–8, 100; Meru, on the equator, August 9, 25 seen; Tharaka district, August 13, 20 birds; Tana River, August 14–17, 250 observed.

EUROCEPHALUS RÜPPELLI ERLANGERI Zedlitz

Eurocephalus anguitimens erlangeri ZEDLITZ, Orn. Monatsb., vol. 21, p. 58, 1913: Dire Daoua.

SPECIMENS COLLECTED:

3 males, 4 females, Dire Daoua, Ethiopia, November 29–December 19, 1911.
2 females, Sadi Malka, Ethiopia, January 31–February 2, 1912.
2 males, 1 female, Hawash River, Ethiopia, February 7–12, 1912.
1 female, Gato River near Gardula, Ethiopia, April 7, 1912.
1 male, Gato River near Gardula, May 9, 1912.

The characters and distribution of this subspecies have already been dealt with in the discussion of the nominate form.

Most of the specimens listed above are in rather worn plumage, while three from Dire Daoua are molting the remiges and rectrices. In connection with the size data given for *rüppelli*, the dimensions of *erlangeri* (table 64) are significant, showing as they do, the very real difference between the two races.

It resembles *rüppelli* in its general habits, being one of the most conspicuous birds, both to the ear and the eye, of the thornbush country. According to von Heuglin[65] it breeds in February and March. This is corroborated by the observations of several naturalists. Erlanger[66] found a nest with four eggs near Harrar on May 16 (not March as stated by Shelley[67]) and another with three eggs at Darassum, in Gurraland, on April 8. In northern Somaliland Lort Phillips[68] watched a pair building a nest early in March. The nest, he says, "was built almost entirely of spiders' webs with a foundation moss, and looked like a magnified nest of a Humming-bird. It was stuck against the side of a tallish tree, about 12 feet from the ground, and at a little distance could scarcely be distinguished from the bark." Some years later[69] he obtained a nest with four eggs at Gedaïs, on March 2.

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[65] Ornithologie Nordost-Afrika's, etc., vol. 1, pp. 487–488, 1869.
[66] Journ. für Orn., 1905, pp. 670–689.
[67] The birds of Africa, vol. 5, pt. 2, p. 449, 1912.
[68] Ibis, 1896, p. 78.

TABLE 64.—*Measurements of 14 specimens of* Eurocephalus rüppelli erlangeri *from Ethiopia*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Dire Daoua	Male	131.0	102.5	18.5	22.0
Do	do	133.0	101.5	18.0	22.5
Do	do	129.0	99.0	17.5	22.5
Hawash River	do	128.0	98.0	17.0	22.0
Do	do	129.0	100.0	17.0	23.0
Gato River	do	130.0	97.0	17.0	22.5
Dire Daoua	Female	135.0	102.0	17.0	24.0
Do	do	130.0	100.0	17.0	23.0
Do	do	133.5	104.5	17.0	23.5
Do	do	134.5	108.5	18.5	23.5
Sadi Malka	do	129.0	100.0	----------	22.0
Do	do	134.0	101.0	18.0	24.0
Hawash River	do	129.0	104.0	18.0	23.0
Gato River	do	131.0	101.0	17.0	23.0

NILAUS BRUBRU MINOR Sharpe

Nilaus minor Sharpe, Proc. Zool. Soc. London, 1895, p. 479: Okoto, central Somaliland.

SPECIMENS COLLECTED:

1 male, Dire Daoua, Ethiopia, December 6, 1911.
3 males, 2 females, Gato River near Gardula, Ethiopia, April 8–24, 1912.
1 female, Bodessa, Ethiopia, May 22, 1912.
2 males, Tertale, Ethiopia, June 7, 1912.
1 male, Yebo, Ethiopia, June 21, 1912.
1 male, Malele, Kenya Colony, July 27, 1912.
2 males, 2 females, 1 immature female, Lekiundu River, Kenya Colony, August 4–7, 1912.
1 female, Tharaka district, 2000 feet, Kenya Colony, August 14, 1912.
1 female, Tana River, Camp No. 6, Kenya Colony, August 21, 1912.
1 male, 20 miles above mouth of Thika River, Kenya Colony, August 27, 1912.

I consider this form a race of the South African *Nilaus brubru*, from which it differs only in size, the latter being somewhat larger. Most writers have either kept *minor* as a distinct species or assumed it to be a race of *afer*, to which species it certainly seems not to belong. In connection with the present study I have examined a series of 46 specimens of *minor* and find no grounds for maintaining Hilgert's form *erlangeri*,[70] which therefore becomes a synonym of *minor*. The race *erlangeri* is said to be somewhat smaller and to have paler chestnut sides and flanks than *minor*, and the range is said to be southern Gallaland east through southern Somaliland to the coast, and possibly south to the Taru desert. I have seen no topotypical material of *erlangeri*, but find that *minor* from Ethiopia, Kenya Colony, and British Somaliland varies considerably in color and in size, and I note that while Neumann[71] refers a bird from the Taru Desert to *erlangeri*, van Someren[72] finds no difference between Taru birds and *minor*. It appears, therefore, that *erlangeri* is based on inconstant characters and can not be maintained.

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[69] Ibis, 1898, p. 406.
[70] Orn. Monatsb., 1907, p. 63.

There are, then, two races of this species, as follows:

1. *N. b. brubru:* Southern Africa from Natal, the Transvaal, and the Orange River, north to Benguella and Southern Rhodesia (to the Zambesi River in Mashonaland); wings, 80–90 mm.

2. *N. b. minor:* Southern Eritrea (southern Danakil area), south through Somaliland and the eastern lowlands of Ethiopia (eastern Harrar to Ogaden), southern Gallaland west to Shoa, south through Kenya Colony to northeastern Tanganyika Territory (the Kilimanjaro region west to the Natron Lakes). Similar to *brubru* but smaller; wings, 67–81 mm.

The size variations of the present series are shown in table 65.

TABLE 65.—*Measurements of 18 specimens of* Nilaus brubru minor

Locality	Sex	Wing	Tail	Culmen	Tarsus
ETHIOPIA:		*Mm*	*Mm*	*Mm*	*Mm*
Dire Daoua	Male	76.0	49.0	15.0	19.0
Gato River	do	77.0	49.0	15.0	19.5
Do	do	81.0	50.0	15.5	19.5
Do	do	78.0	49.0	15.0	19.0
Tertale	do	79.0	47.0	14.5	19.5
Do	do	77.0	50.0	14.5	19.0
Yebo	do	69.0	49.0	15.5	20.0
KENYA COLONY:					
Malele	do	74.0	47.0	14.5	19.0
Lekiundu River	do	76.0	49.0	----------	20.0
Do	do	75.5	47.5	14.5	19.0
Thika River	do	77.5	49.0	14.5	19.0
ETHIOPIA:					
Gato River	Female	76.0	46.0	15.0	20.0
Do	do	78.0	50.0	15.0	19.0
Bodessa	do	75.0	47.5	14.0	20.0
KENYA COLONY:					
Lekiundu River	do	72.5	44.0	15.0	20.0
Do	do	75.0	47.0	15.0	19.0
Tharaka district	do	70.0	44.5	----------	19.5
Tana River	do	74.0	48.5	14.0	19.0

A few of these birds are molting, but the majority are not and are in good fairly fresh plumage. The breeding season in Somaliland is in April; in Kenya Colony in March. At Haro-Gobana in Gurraland Erlanger[73] found a nest with two eggs on April 8.

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[71] Journ. für Orn., 1907, p. 363.

[72] Nov. Zool., vol. 29, p. 110, 1922.

Like the other members of its genus, this bird lives in the thornbush country and is usually found singly or in pairs.

Sclater[74] considers *massaicus* and *ruwenzorii* as subspecies of *minor*. I see no reason for this and feel that the facts are more accurately expressed by putting them (*ruwenzorii* is a synonym of *massaicus* anyway) in the *afer* group.

Family STURNIDAE, Starlings

CREATOPHORA CINEREA (Meuschen)

Rallus cinereus Meuschen, Museum Geversianum sive index rerum naturalium, etc., p. 40, no. 17, 1787, based on der Capsche Strandlaufer, *Tringa caruncula capensis*, Naturforscher, vol. 11, p. 9, tabl. 2, 1777: No definite locality mentioned; Cape of Good Hope implied.

Specimens collected:

1 male, 1 female, Turturo, Ethiopia, June 15, 1912.
2 males, 1 female, Malata, Ethiopia, June 22, 1912.
2 males, 1 female, Chaffa, Ethiopia, June 23, 1912.
1 male, 18 miles southwest of Hor, Kenya Colony, July 1, 1912.
2 females, Lekiundu River, Kenya Colony, August 5, 1912.

Mathews[75] has pointed out that Meuschen's name is earlier than *carunculatus* Vieillot, and so must be used for this bird.

One of these specimens, the female from Chaffa, has the wattles somewhat developed on the throat, but aside from the circumocular area, the head is feathered, and no sign of frontal or capital wattles is visible.

The males are all in the brownish plumage of immaturity and are much abraded. One of them, taken at Malata, June 22, is molting into the grayer adult plumage. All of them, like the females too, have the eye encircled by a bare space and have two bare gular stripes running posteriorly from the posteroventral ends of the mandibular rami. The female with the developing gular wattles has them growing out of each of these two bare lines. Inasmuch as the figure given by Stark[76] indicates but a single throat wattle, it would seem as if the midventral throat feathers are subsequently shed and the two wattles grow into a single fused structure. The bare throat spaces are yellow in young birds and in summer specimens; black in breeding birds.

Recently, de Schauensee[77] has shown that the denudation of the head and the synchronous development of the wattles is not a matter of age, as previously thought, but a seasonal one. Van Someren,[78] however, found that "the state of the wattles in no way indicates the condition of the reproductive organs." Some of his birds in breeding condition had the heads still covered with feathers, although wattles were present. According to de Schauensee, his bird (a captive individual) had the head completely bare, with the wattles well developed, in May. It remained this way until the end of October when feathers began to sprout about the throat wattles. "At this point", he says, "the wattles began to shrink and the feathers spread slowly backwards to the crown and occiput, and by the beginning of December the head was completely feathered. The bird continued in this plumage until May. The feathers of the head then began to fall out and the wattles to swell and by the middle of June the head was exactly as it had been the summer before."

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[73] Journ. für Orn., 1905, pp. 691–692.
[74] Systema avium Æthiopicarum, pt. 2, p. 602, 1930.
[75] Austral Avian Rec., vol. 5, no. 4, p. 83, 1926.
[76] The birds of South Africa, vol. 1, p. 23, 1900.
[77] Auk, 1928, p. 217.

Van Someren kept birds in captivity for two years at Nairobi and failed to find any seasonal change in them, but it has been suggested that molt is often irregular in equatorial regions.

Finally, to bring the evidence to a close, it may be mentioned that the United States National Museum has a completely gymnocephalic male, shot on February 14, at Ledgus, on the Sudan-Uganda border, which has no sign of wattles either on the throat or the crown.

The phenomenon of gymnocephaly in *Creatophora* makes one want to compare it with some of the honey-eaters of the Australian region, such as *Philemon argenticeps* and *Tropidorhynchus novae-guinea;* with *Allocotops calvus* of Borneo; with its nearer relative *Mino dumonti;* with some of the birds of paradise, such as *Paradigalla carunculata* and *Schlegelia wilsoni;* and with *Picathartes* of West Africa. In some notably gymnocephalic birds, such as vultures, guinea-fowls, and some storks, cephalic nudity appears to be a matter of age (in some storks even the nestlings have bare areas on the head, however). In the Meliphagidae the condition appears in the first plumage and seems not to alter with age; in the babbler *Allocotops* gymnocephaly is said to be wholly an age character; in the Paradiseidae the data are too meager to help us much; in the glossy starlings, *Mino*, *Sarcops*, and *Eulabes*, the bare spaces are present in the young but may be slightly larger in the adults. Again, the available information is not sufficient to allow a comparison with some of the tropical American cotingas, such as *Gymnocephalus*, *Gymnoderas*, and *Chasmorhynchus*. In the European rook, bareness comes with age.

Though the data on gymnocephaly are not even nearly satisfactory as yet, it appears that, if de Schauensee's bird was acting in a natural way, *Creatophora* is the only bird known to possess seasonal gymnocephaly other than the ruff, *Machetes pugnax*. In the light of van Someren's notes, I cannot see that this is so. The scarcity of bald-headed specimens in collections argues against the purely seasonal nature of this phenomenon.

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[78] Nov. Zool., vol. 29, p. 128, 1922.

Both van Someren and de Schauensee appear to have overlooked Neumann's notes [79] to the effect that he found a large breeding colony at Ngare Longai, north of Taveta, and that it did not contain a single gymnocephalic male. He even suggests that gymnocephaly is produced only in South African birds and hints that the birds of northeastern and eastern equatorial Africa may be racially separable on this basis. This last is negatived by the bare-headed male from the Sudan-Uganda border, but it shows the great scarcity of gymnocephalic individuals.

The question is partly a matter of age—young birds do not have large bare spaces or wattles; the problem is then a matter of seasonal change among adults, or one of extreme age.

The wattled starling is widely distributed over eastern Africa from central Shoa, the Blue Nile, and Kordofan southward. It is not known in the very high country of Ethiopia. It is a nomadic species, following the swarms of locusts, and is known to change its breeding place (it is gregarious in its nesting) from year to year.

Besides the specimens collected, Mearns noted this bird as follows: Chaffa villages, June 23–25, 1,000 birds; dry river 18 miles southwest of Hor, 50 seen; Nyero Mountains south of Lake Rudolf, July 13, 40 noted; Endoto Mountains July 19–24, 600; Er-re-re, July 25, 50 birds; river 24 miles south of Malele, July 29, 100; 40 miles south of Malele, July 30, 500; Northern Guaso Nyiro River, July 31, 200; Lekiundu River, August 4–8, 1,500 birds; Guaso Mara River, August 9, 200 birds seen.

The breeding season in Kenya Colony is in the rainy seasons; at least to a large extent. Neumann found a breeding colony north of Taveta in the middle of December; van Someren [80] obtained a molting young bird in October.

CINNYRICINCLUS LEUCOGASTER FRIEDMANNI Bowen

Cinnyricinclus leucogaster friedmanni Bowen, Proc. Acad. Nat. Sci. Philadelphia, vol. 82, p. 166, 1930: Near Gardula, southern Ethiopia.

Specimens collected:

2 adult males, Ourso, Ethiopia, October 3, 12, 1911 (Ouellard coll.).
1 adult male, Loco, Ethiopia, March 13, 1912.
1 adult male, near Gardula, Ethiopia, March 29, 1912.
1 immature male, Bodessa, Ethiopia, May 24, 1912.

Bowen [81] has recently reviewed the races of this starling and concluded that there were four valid forms, two of which, including the present one, were new at that point. I have examined a series of all four races, and my findings support those recorded by Bowen.

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[79] Journ. für Orn., 1905, p. 237.

[80] Ibis, 1916, p. 400.

[81] Proc. Acad. Nat. Sci. Philadelphia, vol. 82, pp. 165–167, 1930.

The present race and the nominate form have no white on the outer tail feathers; the other two—*verreauxi* and *lauragrayae*—have white on the outer webs of the lateral pair of rectrices. The present subspecies differs from typical *leucogaster* in being larger; wings, 105–113 mm as against 97–104 mm. Therefore, *C. l. friedmanni* may be characterized briefly as a large form with no white in the tail.

The specimen from near Gardula is the type.

The Loco male is much darker and more bluish than the Ourso and Gardula specimens. When held away from the light, it is fluorite violet above, while the others are madder violet suffused with auricula purple. The Loco bird is also distinguished from the others by having a slenderer bill.

The four adults have wing lengths of 105, 106, 109, and 109.5 mm, respectively. The Ourso birds are in worn plumage; the Gardula and Loco specimens are fairly freshly feathered.

Neumann[82] records males in breeding plumage in December and February, birds molting into breeding plumage in the same months, and young birds in February, April, and May, in southern Ethiopia. I am not aware of any more definite information as to the breeding season of this bird in Ethiopia.

Bowen, Sclater, and others give Ethiopia as the northern limit of the distribution of the violet-backed starling in eastern Africa, but it has been reported from Bogosland in southern Eritrea as well. It has recently been found to occur in southwestern Arabia[83] and at Sinkat, Red Sea Province, Sudan.[84] The latter is typical *leucogaster*, the former is probably the same.

In Ethiopia, the species is found in the river valleys and in the middle highlands, but not above 8,300 feet. That it is somewhat local may be inferred from the fact that Mearns did not see it in his journey through the Hawash Valley, and Arussi-Gallaland. Erlanger[85] found it only very seldom, except to the south of Ginir, where it was more numerous.

Mearns recorded 20 of these starlings at Loco March 13, and 1 between the Abaya Lakes and Gardula, March 26.

CINNYRICINCLUS LEUCOGASTER LAURAGRAYAE Bowen

Cinnyricinclus leucogaster lauragrayae BOWEN, Proc. Acad. Nat. Sci. Philadelphia, vol. 82, p. 166, 1930: Meru, Kenya Colony.

SPECIMENS COLLECTED: 1 male, 2 females, Meru Forest, Kenya Colony, August 10, 1912.

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[82] Journ. für Orn., 1905, pp. 237–238.

[83] Sclater, Ibis, 1917, p. 140.

[84] Bowen, Proc. Acad. Nat. Sci. Philadelphia, vol. 83, p. 68, 1931.

[85] Journ. für Orn., 1905, p. 707.

This race is the opposite extreme from *friedmanni.* It is a small form with white on the outer webs of the outermost pair of rectrices, just as the latter is a large race with no white. Bowen gives 102–109 mm as the range of variation in wing length of *lauragrayae*, while in *verreauxi*, the other race with white in the tail, the wings measure from 110 to 114 mm. The present birds have wings of 104, 106, and 107 mm, respectively.

Van Someren [86] finds the characters of *lauragrayae* to be inconstant, and as his series is considerable his findings must be taken into account. All the material I have seen, however, supports this race.

The two females differ in the color of the crown, nape, and upper back. One, in fresh plumage, has all the feathers of these parts margined with rufous-tawny, deepest and most rufescent on the head, palest and least so on the back; the other, in more abraded condition, has the edges of the head feathers paler, more tawny, less rufous, and the feathers of the upper back have completely lost their bright edges. The male is in rather fresh plumage.

Mearns observed 20 of these birds at Meru.

PHOLIA SHARPII (Jackson)

Pholidauges sharpii Jackson, Bull. Brit. Orn. Club, vol. 8, p. 22, 1898: Nandi (but type in the British Museum from Ravine, Mau Plateau).

Specimens collected:

2 males, near Aletta, Sidamo, Ethiopia, March 6, 1912.
1 female, Loco, Ethiopia, March 13, 1912.

Sharpe's starling occurs in the highlands of eastern Africa from the Rungwe country northwest of Lake Nyasa, through Tanganyika Territory and the eastern Belgian Congo to the Kaffa, Sidamo, and Djamdjam districts of southern Ethiopia.

According to Neumann,[87] this bird lives in thick jungle at altitudes of from 8,200 to 9,600 feet.

The three specimens obtained are in fresh plumage. Their dimensions are as follows: Males—wing, 98, 100.5; tail, 60, 63; culmen, 12.5, 13; tarsus, 20, 20 mm. Female—wing, 98; tail, 61.5; culmen, 13; tarsus, 20 mm.

SPECULIPASTOR BICOLOR Reichenow

Speculipastor bicolor Reichenow, Orn. Centralb., 1879, p. 108: Kipini, Kenya Colony.

Specimens collected:

1 adult male, Gato River near Gardula, Ethiopia, April 14, 1912.
1 immature male, Anole, Ethiopia, June 17, 1912.

The present two specimens constitute the first record for this starling in Shoa and extend the known range of the species westward about 250 miles.

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[86] Nov. Zool., vol. 37, pp. 313–314, 1932.

[87] Journ. für Orn., 1905, pp. 238–239.

Erlanger[88] found it at Daua, at Garre-Lewin, and at Kismayu. Van Someren[89] found it at Mombasa; near Nairobi; and in the dry country around Mount Moroto in Turkana, Uganda. He writes that this species is the most nomadic of all the glossy starlings in East Africa.

Recently, van Someren[90] has recorded this starling from Jubaland west to Turkana and Karamoja, Elgon, and Sotik, and from central Kenya Colony to the coast.

The young bird is dark grayish brown above, and is paler grayish brown on the throat and upper breast. The rest of the underparts are white. As van Someren says, it resembles adults of *Spreo fischeri*, but has a white wing speculum.

The adult is in fairly fresh plumage, and has the following dimensions: Wing, 112.5; tail, 76; culmen (broken); tarsus, 27 mm.

The breeding season in Somaliland and adjacent parts of Gallaland is in April and May. Erlanger found a nest with six eggs at Dolo on the Daua River on April 30, and another near by on May 1.

LAMPROCOLIUS CHALYBEUS CHALYBEUS (Hemprich and Ehrenberg)

Lamprotornis chalybeus HEMPRICH and EHRENBERG, Symbolae physicae, folio y, pl. 10, 1828: Ambukol, Dongola.

SPECIMENS COLLECTED:

1 male, Ourso, Ethiopia, undated (Ouellard coll.).
1 male, 1 female, 1 unsexed young, Ourso, Ethiopia, October 21–28, 1911 (Ouellard coll.).
3 males, 4 females, Dire Daoua, Ethiopia, December 3, 1911–January 3, 1912.
1 male, Gada Bourca, Ethiopia, December 24, 1911.
3 males, 1 female, Adis Abeba, Ethiopia, January 3–8, 1912.
1 male, Sadi Malka, Ethiopia, February 2, 1912.
1 male, Hawash River, Ethiopia, February 12, 1912.
2 females, Arussi Plateau, Ethiopia, February 21–29, 1912.
2 males, Aletta, Sidamo, Ethiopia, March 8, 1912.
6 males, 4 females, Gato River near Gardula, Ethiopia, March 30–April 21, 1912.
1 male, Anole village, Ethiopia, May 18, 1912.
1 male, 1 female, Tana River, Kenya Colony, August 19–20, 1912.

Soft parts: Iris orange in male, yellow in female; bill, feet, and claws black.

Stresemann[91] has recently reviewed the races and variations of this starling, and the material examined in the present study bears out his conclusions.

The present subspecies is the only one occurring in the areas traversed by the expedition. The form is commonly and widely distributed throughout Ethiopia and Kenya Colony, being replaced in southern Kenya Colony by an allied smaller form *sycobius*. Its abundance is indicated by the fact that Mearns noted from 10 to 1,000 daily on the journey from Aletta (March 7) to the Athi River (August 30). There is no point in transcribing each day's notes, as they are monotonously similar.

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[88] Journ. für Orn., 1905, pp. 707–708.
[89] Nov. Zool., vol. 29, pp. 128–129, 1922.
[90] Nov. Zool., vol. 37, p. 314, 1932.
[91] Journ. für Orn., 1925, pp. 154–158.

LAMPROCOLIUS SPLENDIDUS SPLENDIDUS (Vieillot)

Turdus splendidus Vieillot, Encyclopédie Méthodique, vol. 2, p. 653, 1822: Malimbe, Portuguese Congo.

Specimens collected: 1 male, Loco, Ethiopia, March 13, 1912.

The single specimen of this glossy starling obtained by the expedition agrees perfectly with specimens from Kenya Colony and Gaboon. It is in good, fresh plumage and is fully adult.

Neumann[92] first recorded this bird from within the political boundaries of Ethiopia. He obtained specimens at Uma River in Konta; at Anderatscha in Kaffa; at Gadjin in Benescho; and at Schekho on the upper Gelo. As far as I know, Mearns's specimen, here recorded, is the only other one on record from Ethiopia. Loco is the northeasternmost locality from which the species is known. That it is not accidental or even uncommon there is indicated by the fact that Mearns noted about 50 of these birds there March 13–15.

Unlike the common glossy starlings of northeastern Africa (*L. chalybeus* and *L. chloropterus*), the present species inhabits dense jungle. It is a bird of the highland country at altitudes of from 6,600 feet to 8,000 feet.

The breeding season in Ethiopia is not known. In Uganda van Someren[93] found eggs in March and molting birds in August.

LAMPROTORNIS PURPUROPTERUS PURPUROPTERUS Rüppell

Lamprotornis purpuropterus Rüppell, Systematische Uebersicht, pp. 64, 75, pl. 25, 1845: Shoa.

Specimens collected:

1 male, Ourso, Ethiopia, October 13, 1911 (Ouellard coll.).
1 male, Moulu, Ethiopia, December 17, 1911.
1 female, Sadi Malka, Ethiopia, January 28, 1912.
2 males, Lake Abaya, Ethiopia, March 18–21, 1912.
2 males, 1 female, Gato River near Gardula, Ethiopia, March 21–April 18, 1912.
1 female, Sagon River, Ethiopia, June 5, 1912.
1 male, 1 female, Tana River, Kenya Colony, August 17, 1912.
2 males, Tana River at mouth of Thika River, Kenya Colony, August 23–24, 1912.

Soft parts: Iris yellowish white; feet, claws, and bill jet black.

Rüppell's long-tailed glossy starling occurs throughout the regions visited by the expedition and south to the Ufipa district in Tanganyika Territory. In Bogosland and west through Sennar to Kordofan it is replaced by a slightly larger race *aeneocephalus*. Sclater[94] considers the birds of Uganda and the southern Sudan (Upper White Nile and Bahr el Ghazal) as typical *purpuropterus*. I have examined a good series of specimens from these areas and find them to be generally smaller than Ethiopian and Kenyan birds and suggest that it may be well to recognize Sharpe's name *brevicaudus* for the Uganda and south Sudanese birds. Table 66 shows clearly the differences in size exhibited in the material available for study in this connection.

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[92] Journ. für Orn., 1905, pp. 240–241.
[93] Ibis, 1916, p. 402.

TABLE 66.—*Measurements of 32 specimens of* Lamprotornis purpuropterus purpuropterus

Locality	Sex	Wing	Tail	Culmen	Tarsus
ETHIOPIA:		*Mm*	*Mm*	*Mm*	*Mm*
Ourso	Male	148.0	153.0	20.0	39.0
Moulu	do	156.5	159.0	20.5	38.0
Lake Abaya	do	154.0	151.0	20.0	34.0
Do	do	152.0	146.0	20.5	38.5
Gato River	do	161.0	156.0	22.0	39.0
Do	do	158.0	157.0	20.0	38.0
KENYA COLONY:					
Tana River	do	161.0	145.5	21.5	38.5
Do	do	160.0	150.0	20.0	41.0
Do	do	160.0	151.0	22.5	41.5
UGANDA:					
Kutwi	do	145.0	142.0	20.0	36.0
Do	do	151.0	147.0	22.0	39.0
Do	do	145.0	146.0	19.5	38.5
Do	do	162.0	162.0	21.5	39.5
Do	do	144.0	141.0	20.0	37.5
Do	do	147.5	143.5	20.5	38.5
Kisingo	do	149.0	148.0	21.0	40.0
Do	do	145.5	140.0	21.5	38.0
Rhino Camp	do	145.0	136.5	20.0	37.5
Lokko Zegga	do	152.0	140.0	20.5	40.5
SUDAN:					
Gondokoro	do	148.0	139.0	21.5	39.0
Do	do	147.0	142.0	----------	38.0
ETHIOPIA:					
Sadi Malka	Female	139.5	131.5	21.0	33.5
Gato River	do	137.0	131.0	19.5	34.5
Sagon River	do	141.0	128.5	21.5	35.5
KENYA COLONY: Tana River	do	136.5	131.0	20.5	37.5
UGANDA:					
Kigomma	do	139.0	132.0	20.0	35.5
Do	do	150.0	141.0	20.0	39.5
Rhino Camp	do	133.0	120.5	21.0	37.0
Tombeki River	do	135.5	133.0	19.5	33.0
Uma River	do	153.0	150.0	20.5	39.0
SUDAN:					
Gondokoro	do	132.0	126.0	21.0	35.5
Renk	do	137.0	154.0	22.0	38.0

Van Someren[95] collected a series in Uganda and adjacent parts of southwestern Kenya Colony and found the wing dimensions to be

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[94] Systema avium Æthiopicarum, pt. 2, p. 661, 1930.

[95] Nov. Zool., vol. 29, p. 131, 1922.

149–160 mm in the males and 135–150 mm in the females. These figures have higher minima than those afforded by the series at hand, and because of this difference I feel it better not to recognize formally *brevicaudus*, but merely to call attention to it for the benefit of future workers in Uganda.

The birds collected at Gato River in March and April, and two shot on the Tana River in August, are in a molting condition; the birds taken at Ourso and at Lake Abaya, in October and March, are in worn plumage; the one from Moulu, December 17, and one from the Tana River, August 17, are in fresh feathering. Abrasion tends to reduce the reddish-violet sheen on the upper back to bluish, and that on the middle rectrices to bronzy.

The Ourso specimen is subadult and has the entire head blackish with a dull violaceous sheen.

Van Someren [96] writes that birds from Jubaland do not have so well marked a purple collar as is found in specimens from Uganda. I am unable to corroborate this and find that the extent of the purple appears to vary both individually and with wear. Erlanger [97] found that in a large series from Ethiopia some individuals had the back steel-blue with only the nape and upper tail coverts purplish, while others had the entire upperparts decidedly purplish.

According to Neumann,[98] this species lives in the acacia scrub country of the warmer valleys and does not ascend into the highlands above 6,600 feet.

Erlanger found two juvenal birds early in June in southern Somaliland. Van Someren [99] found a nest with eggs in April in Uganda, and shot some young birds there in June.

Besides the specimens collected, Mearns noted this species as follows: Tana River, August 15–23, 85 birds seen; Thika River, August 23–28, 850; near Athi River, August 29, 20 birds.

COSMOPSARIS REGIUS MAGNIFICUS van Someren

Cosmopsaris regius magnificus VAN SOMEREN, Bull. Brit. Orn. Club, vol. 44, p. 71, 1924: Tsavo, Kenya Colony.

SPECIMENS COLLECTED:

1 juvenal unsexed, Ourso, Ethiopia, October 8, 1911 (Ouellard coll.).
1 adult male, 1 adult female, Errer River, Ethiopia, December 13, 1911.
1 juvenal female, Saru, Ethiopia, June 18, 1912.
3 adult males, Le-se-dun, Kenya Colony, July 26, 1912.
1 juvenal female, Malele, Kenya Colony, July 27, 1912.
1 adult female, Lekiundu River, Kenya Colony, August 4, 1912.

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[96] Journ. East Africa and Uganda Nat. Hist. Soc., no. 35, p. 55 (131), 1930.

[97] Journ. für Orn., 1905, p. 710.

[98] Ibid., p. 243.

[99] Ibis, 1916, p. 403.

Soft parts: Iris yellowish white; bill, feet, and claws black.

No material of typical *regius* has been available for study, and therefore I follow Sclater[1] in considering all the present specimens as of van Someren's race *magnificus*. Certainly they do not differ *inter se*, and they agree with two examples from the plains east of Mount Kilimanjaro.

The young birds from Ourso and Saru are just beginning to molt into adult plumage; a few glossy greenish feathers are sprouting on the throat, crown, nape, and upper back; the Malele bird is less advanced, having only a few green feathers posterior to the eyes and two on the throat. One of the adults from Le-se-dun is just finishing the molt and is in full fresh plumage, but has the middle rectrices still inclosed in their sheaths basally although fully grown in length.

The adult males have wings measuring 130, 132, 136.5, and 140 mm, tails 212, 221, 223, and 236 mm, respectively. The adult females—wings, 122 and 123 mm; tails, 184 and 188 mm, respectively.

This beautiful bird occurs from southern Ethiopia and the Ogaden region south through the interior of Kenya Colony to the Kilimanjaro district. It lives in the acacia savannahs and is usually found in small flocks of 6 to 10 individuals. It seems to be really numerous nowhere but perhaps reaches its greatest abundance in Somaliland (where, of course, the nominate race is the local form). Erlanger[2] found it common near Ginir.

The golden-breasted glossy starling has been taken only a few times in Ethiopia. Hawker saw it near the western frontier of Harrar; Pease obtained specimens at Errer Gota; and Erlanger shot examples in Arussi-Gallaland and Gurraland.

Erlanger found nests with eggs in the Ginir district on April 4 and 5. He notes that as early as the beginning of May, one often sees fledged young and that the breeding season appears to be very definite and brief. Lönnberg[3] shot a male on March 10 north of the Northern Guaso Nyiro River in Kenya Colony. He says: "This specimen had the testicles much swelled which proves that the bird in question breeds in the thornbush country north of Guaso Nyiro below Chanler Falls at that time of the year."

Mearns observed this species in the following places: Saru, June 19, 20 birds; Endoto Mountains, July 19–20, 4 seen; Le-se-dun, July 26, 25 seen; Malele, July 27, 25 birds; 18 to 24 miles south to Malele, July 28–29, 25 noted; Lekiundu River, August 4–8, 4 birds seen.

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[1] Systema avium Æthiopicarum, pt. 2, p. 663, 1930.

[2] Journ. für Orn., 1905, p. 711.

[3] Kongl. Svenska Vet.-Akad. Handl., 1911, p. 99.

ONYCHOGNATHUS WALLERI WALLERI (Shelley)

Figure 19

Amydrus walleri Shelley, Ibis, 1880, p. 335, pl. 8: Usambara highlands.

Specimens collected: 4 males, 1 female, Escarpment, Kenya Colony, September 5–6, 1912.

Sclater's arrangement of the races of the starling[4] seems to me to be erroneous insofar as the ranges of *walleri*, *nyasae*, and *elgonensis* are concerned. He considers birds from all the highlands of Kenya Colony (Mount Kenya, Mount Elgon, Nandi, Marsabit, etc.) as *elgonensis* and restricts *nyasae* to Nyasaland and southwestern Tanganyika Territory. The difference between the two is one of size, *nyasae* being larger, *elgonensis* smaller. Van Someren[5] sensed the fact that the birds of Mount Kenya were larger than those from Mount Elgon and Nandi, but he did not definitely commit himself as to the relationship of the Mount Kenya birds to *nyasae*. He writes in the following rather ambiguous way: "I have compared my four birds with the type and find that they agree fairly well, but the type is so poor a skin as to be almost useless for comparison. I doubt if *A. nyassae* is a good race. The type is certainly a large bird."

I have examined specimens of *nyassae* from southern Tanganyika Territory (Uzungwe Mountains) and find them identical with birds from Mount Kenya and from Escarpment, and I am led to conclude that *nyasae* is not separable from *walleri* and that the distribution of the races of this bird is as follows:

1. *O. w. walleri:* The highlands of Nyasaland, Mount Rungwe, and the Uzungwe Mountains in Tanganyika Territory north to the Uluguru and Usambara ranges and Mount Kilimanjaro north to the highlands of Kenya Colony, east of the Rift Valley (Mount Kenya and Escarpment).
2. *O. w. elgonensis:* The highlands of Kenya Colony west of the Rift Valley (Mount Elgon, Nandi), southwest to Ankole in Uganda and the Kivu Volcanoes, but does not appear to be known from Ruwenzori.

I have seen no material from Marsabit and can not say whether the birds of that mountain are *elgonensis* or *walleri.*

3. *O. w. preussi:* Cameroon Mountain and Fernando Po.

Van Someren gives the wing measurements of his male birds from Mount Elgon and Nandi as 123–127 mm; the present four from Escarpment have wings of 134.5–136.5 mm in length. The female listed above has a wing measuring 131.5 mm and agrees very closely with two from Mount Kenya. A male *walleri* from the Uzungwe Mountains has a wing length of 134.5 mm.

The present specimens are all in fresh plumage.

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[4] Systema avium Æthiopicarum, pt. 2, p. 664, 1930.

[5] Nov. Zool., vol. 29, pp. 132–133, 1922.

The breeding season does not appear to be well known. On the Nandi highlands *elgonensis* has been found nesting early in June.

Mearns saw about 100 of these birds at Escarpment, September 4–12.

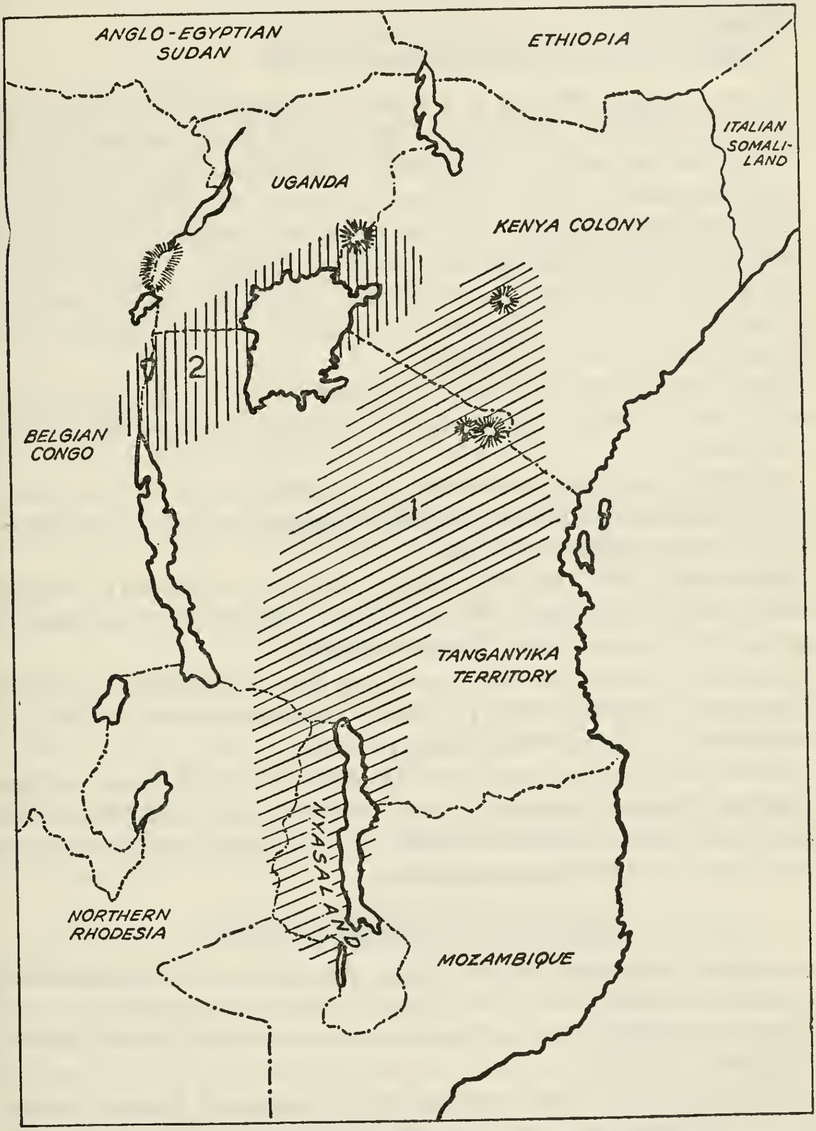
ANGLO-EGYPTIAN SUDAN
ETHIOPIA
ITALIAN SOMALILAND
UGANDA
KENYA COLONY
BELGIAN CONGO
2
1
TANGANYIKA TERRITORY
NYASALAND
NORTHERN RHODESIA
MOZAMBIQUE

FIGURE 19.—Distribution of *Onychognathus walleri* in eastern Africa.

1. *O. w. walleri.* 2. *O. w. elgonensis.*

Since the above was first written van Someren[6] has described the Mount Kenya bird as *keniensis*, differing from *elgonensis* by being larger. He did not compare *keniensis* with southern birds. I consider *keniensis* a synonym of *walleri.*

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[6] Journ. East Africa and Uganda Nat. Hist. Soc., no. 37, p. 197, 1931: Meru Road.

ONYCHOGNATHUS MORIO RUPPELLII (Verreaux)

Amydrus ruppellii Verreaux, *in* Chenu, Encyclopédie d'histoire naturelle, Oiseaux, vol. 5, p. 166, 1856: Abyssinia.

Specimens collected:

1 unsexed, Dire Daoua, Ethiopia, October 1911.
1 male, Aletta, Sidamo, Ethiopia, March 10, 1912.

The red-winged starling is a widely distributed bird over a good part of the African Continent. The present race, characterized by its large size, occurs in the highlands of Ethiopia, intergrading with *shelleyi* in northern Kenya Colony. However, the species is uncommon in northern Kenya Colony, as there are few suitable places for it there (recorded from Moroto and West Rudolf). The birds live about rocky cliffs, krantzes, and ravines, where they nest in holes in the vertical walls. Apparently the species is not known from southern Somaliland or Jubaland.

The present race may occur in northern Somaliland, according to Zedlitz,[7] who records a specimen of uncertain subspecific identity from there.

The Dire Daoua bird is a female by plumage and is in worn condition, just starting to molt; the Aletta specimen is in fresh plumage. It has a wing length of 161 mm.

Erlanger [8] found a breeding colony at Burko, between Harrar and Adis Abeba on April 28. He saw large numbers of these birds in the Gara Mulata area near Harrar in March.

Blanford [9] writes that "as a rule these birds kept to the highlands, at about from 7,000 to 8,000 feet, but I shot one specimen in May as low as Suru, barely 2,000 feet above the sea."

Besides the specimens collected, Mearns saw 200 of these starlings at Aletta, March 7–13; 10 at Loco, March 13–15, and 25 at Gato River near Gardula, March 29–May 17. The last named locality is fairly low, only 4,000 feet in altitude.

ONYCHOGNATHUS TENUIROSTRIS (Rüppell)

Lamprotornis tenuirostris Rüppell, Neue Wirbelthiere, zu der Fauna von Abyssinien gehörig, etc., Vögel, p. 26, pl. 10, fig. 1, 1836: Abyssinia.

Specimens collected: 5 males, 2 females, 1 unsexed, Arussi Plateau, Ethiopia, February 23–27, 1912.

The slender-billed chestnut-wing occurs in eastern Africa from the Uhehe highlands of southwestern Tanganyika Territory north through Kenya Colony and Ethiopia to Eritrea (Bogosland). In the west the species extends as far as the Kivu Volcanoes and the Ruwenzori Mountains.

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[7] Journ. für Orn., 1911, p. 91.
[8] Journ. für Orn., 1905, pp. 709–710.
[9] Observations on the geology and zoology of Abyssinia, pp. 398–399, 1870.

Three of the present birds were just finishing their rectricial molt when collected; two of them are otherwise in good fresh plumage, while the third is a subadult bird molting out of the fuscous-black plumage of immaturity into the glossy blue-black of the adult stage. The other birds are in fairly fresh plumage but vary among themselves in this regard.

Inasmuch as this species seems to be uncommon in collections the dimensions of these specimens are here recorded for the benefit of other investigators:

Males: Wing, 145.5, 152, 154, 154, 155 mm; tail, 140, 166, 178, 180, 183 mm; culmen, 25.5, 25.5, 26, 26.5, 26.5 mm; tarsus, 31.5, 32, 32, 33.5, 35 mm. Females: Wing, 141, 143.5 mm; tail, 126, 157 mm; culmen, 23.5, 25 mm; tarsus, 30, 30.5 mm.

Shelley[10] has briefly reviewed what was known at the time of the distribution of this starling. He gives but one Kenyan locality (Mount Kenya), Ruwenzori, and the one Tanganyika record (between Tandalla and Bulongwa), and states that it is fairly abundant in Shoa and central Ethiopia east to Harrar, and even in that country it is a local and uncommon species. In northern Ethiopia and in southern Eritrea it has been taken by a number of collectors. Erlanger[11] procured specimens at Adis Abeba, Gara Mulata, Djamdjam, and in Arussi-Gallaland. The Ruwenzori expedition found this bird plentiful on that great mountain mass at altitudes of from 6,500 to 10,000 feet.[12]

In Kenya Colony the species has been recorded from a number of localities since Shelley's work was published. Van Someren[13] obtained specimens at Lake Magadi, Voi, Nairobi, Fort Hall, and Kyambu; the Smithsonian–African expedition under the late Col. Theodore Roosevelt obtained one at Wambugu. In Tanganyika Territory it has been taken in the Uluguru Mountains.

Ogilvie-Grant[14] writes that the young birds of both sexes, resemble the "male parent in lacking all trace of grey edgings to the feathers; but the whole plumage is much less glossy." It seems to me that there is no greater resemblance to the male parent than to the female; Ogilvie-Grant's statement has the unintended effect of making something remarkable out of a not unusual plumage sequence.

Mearns found these birds feeding in some red-flowering trees in open country at an altitude of 9,200 feet.

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[10] The birds of Africa, vol. 5, pt. 1, pp. 113–114, 1906.

[11] Journ. für Orn., 1905, p. 710.

[12] Trans. Zool. Soc. London, vol. 19, p. 265, 1910.

[13] Nov. Zool., vol. 29, p. 133, 1922, vol. 37, p. 317, 1932.

[14] Trans. Zool. Soc. London, vol. 19, p. 265, 1910.

GALEOPSAR SALVADORII Sharpe

Galeopsar salvadorii Sharpe, Ibis, 1891, p. 241, pl. 4: Turquel, Suk country, northern Kenya Colony.

Specimens collected:

3 males, Ourso, Ethiopia, September 7–October 29, 1911 (Ouellard coll.).
2 females, Dire Daoua, Ethiopia, December 16, 1933.
1 male, southeast of Lake Rudolf, Kenya Colony, July 10, 1912.
3 males, 4 females, Er-re-re, Kenya Colony, July 25, 1912.
1 female, Malele, Kenya Colony, July 27, 1912.

Soft parts: Iris light brown; bill, feet, and claws black.

The bristle-crowned chestnut-wing occurs in northern Kenya Colony (south to the Northern Guaso Nyiro River), north through Shoa, to the Hawash Valley, Arussi-Gallaland, and to Gibeli in Somaliland. The last mentioned locality is given by Sclater,[15] but it seems that the bird must be scarce in Somaliland, as Zedlitz does not include it in his fine work on the birds of southern Somaliland. I know of no record from south of the Northern Guaso Nyiro River, and I do not know how to take Lönnberg's statement[16] that this species "might be regarded as a representative of the Somaliland avifauna even if its distribution extends to Victoria Nyanza in the southwest."

This starling appears to be rather local, especially in the northeastern part of its range. Erlanger[17] saw it but once in Gallaland and commented on its absence elsewhere in his travels.

The birds collected at Ourso in September and December were beginning to molt and are in very worn plumage. The other specimens are in fresh or worn plumage without any correlation to the dates of collection.

The size variations are shown in table 67.

Galeopsar bears the same relationship to *Onychognathus* as *Knestrometopon* does to *Sigmodus*, for example. There are numerous other similar cases in other groups of birds where a genus differs from its closest relatives by the presence of bristlelike frontal feathers. The whole question of the modification of ordinary pennaceous feathers into specialized ones like these is most interesting and should be studied as a separate problem.

Lönnberg suggests, on the basis of his own observations and those of Hilgert and Erlanger, that this species nests on steep rocks or cliffs near water.

Although previous observers found this bird noticeably local, Mearns saw large numbers of them, as the following entries in his field books indicate: Southeast of Lake Rudolf, July 10, 18 seen; Nyero Mountains south of Lake Rudolf, July 13, 25 seen; Endoto

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[15] Systema avium Æthiopicarum, pt. 2, p. 667, 1930.
[16] Kongl. Svenska Vet.-Akad. Handl., 1911, p. 98.
[17] Journ. für Orn., 1905, p. 710.

Mountains, July 19–24, 200; Er-re-re, July 25, 100; Le-se-dun, July 26, 100; Malele, July 27, 100; Northern Guaso Nyiro River, July 31-August 3, 7 birds noted.

TABLE 67.—*Measurements of 14 specimens of* Galeopsar salvadorii

Locality	Sex	Wing	Tail	Culmen	Tarsus
ETHIOPIA:		*Mm*	*Mm*	*Mm*	*Mm*
Ourso	Male	158.0	249.0	22.0	35.0
Do	do	153.0	229.0	21.0	35.0
Do	do	152.0	202.0	21.0	37.0
KENYA COLONY:					
Southeast Lake Rudolf	do	154.0	156.0	21.0	34.0
Er-re-re	do	154.5	190.0	21.5	36.0
Do	do	161.0	257.0	22.5	36.5
Do	do	160.0	249.0	23.0	36.0
Do	Female	155.0	228.0	23.0	37.0
Do	do	155.0	218.0	21.0	34.0
Do	do	156.0	224.0	22.5	36.0
Do	do	146.5	220.0	21.5	34.5
Malele	do	150.0	184.0	22.0	36.0
ETHIOPIA:					
Dire Daoua	do	162.0	257.0	----------	38.5
Do	do	156.0	236.0	21.5	34.5

SPREO SHELLEYI Sharpe

Spreo shelleyi SHARPE, Catalogue of the birds in the British Museum, vol. 13, p. 190; 1890: Somaliland.

SPECIMENS COLLECTED:

2 immature, unsexed birds, Ourso, Ethiopia, October 3, 1911 (Ouellard coll.).
1 adult female, south Lake Stefanie, Ethiopia-Kenya border, May 11, 1912.
1 immature male, Sagon River, Ethiopia, June 3, 1912.

This bird lives in southern Somaliland, Ennia Gallaland west to Lake Stefanie, and to the northern part of Kenya Colony south to the Tana River and to Tsavo and Maungu. On the basis of its occurrence in the Tsavo region, where *hildebrandti* also is found, van Someren[18] proposes to regard *shelleyi* as a distinct species, for "although they overlap, they do not interbreed. I have examined a good many specimens and have seen no evidence of mixing."

It is now established that some of the southern records of *shelleyi* do refer to breeding birds,[19] and now that this is done there is no reason for regarding it as other than a species. It must be admitted that the two forms are very distinct from each other in the adult plumage; *hildebrandti* having the breast much paler than the abdomen, while in *shelleyi* the breast is just as dark as the abdomen. Juvenal birds are hard to tell apart.

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[18] Nov. Zool., vol. 29, p. 128, 1922.

[19] Van Someren, Nov. Zool., vol. 37, p. 314, 1932.

Both of the Ourso birds are in an early stage of the postjuvenal molt; the one from Sagon River is not molting; the adult is in worn plumage.

The main home of this bird appears to be in Ennia and Arussi Gallaland, where Erlanger[20] found it quite abundant. He obtained young birds there in May, June, and July.

Mearns saw 10 of these birds at Sagon River, June 3, and 20 at Bodessa, June 6.

SPREO SUPERBUS (Rüppell)

Lamprocolius superbus Rüppell, Systematische Uebersicht der Vögel Nordost-Afrika's, pp. 65, 75, pl. 26, 1845: Shoa.

Specimens collected:

2 adult males, Ourso, Ethiopia, October 7–27, 1911 (Ouellard coll.).
3 adult males, 1 adult female, Dire Daoua, Ethiopia, November 1–December 19, 1911.
1 adult male, Gidabo River, Ethiopia, March 17, 1912.
1 adult female, between Bodessa and Tertale, Ethiopia, April 9, 1912.
2 adult males, 1 nestling male, 1 nestling female, Gato River near Gardula, Ethiopia, April 8–May 1, 1912.
1 adult female, Tertale, June 8, 1912.
1 adult male, Turturo, June 15, 1912.
1 adult female, Endoto Mountains, Kenya Colony, July 21, 1912.
1 immature male, Malele, Kenya Colony, July 27, 1912.
1 adult male, 1 immature male, 1 adult female, Lekiundu River, Kenya Colony, August 4, 1912.
1 adult male, Tharaka district, Kenya Colony, August 14, 1912.
1 adult female, Tana River, Kenya Colony, August 20, 1912.

Soft parts: Iris very pale yellow, almost white; bill, feet, and claws black.

The superb starling is an abundant bird in Somaliland, southern Ethiopia, Kenya Colony, and Tanganyika Territory. It inhabits the open bush country and does not ascend to very great altitudes in the highlands.

Erlanger[21] found a nest with eggs in northern Somaliland on March 1. Mearns found a nest with two young at Gato River near Gardula on May 1. The two nestlings, which were collected, show that the first pennaceous feathering is similar to the adult plumage, with possibly less white on the breast, and a little less sheen on the back and throat.

Birds from northern Kenya Colony are said by van Someren[22] to be smaller (wings, 110–121 mm) than birds from southern Kenya Colony and Tanganyika Territory (wings, 115–128 mm). This is not borne out by the material I have seen. I find northern males (Ethiopia, Sudan, and northern Kenya Colony) to have wings of 119–125 mm, as against 118–127 mm in southern males.

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[20] Journ. für Orn., 1905, p. 707.
[21] Ibid., p. 706.
[22] Nov. Zool., vol. 37, p. 314, 1932.

Bowen[23] shot a breeding female in the Ikoma region of Tanganyika Territory on July 3, while van Someren[24] obtained a young bird in April in Kenya Colony or Uganda. It seems, from all these data. that the breeding season is a fairly prolonged one.

The great abundance of this starling is indicated by the fact that Mearns recorded from 5 to 1,000 of them daily between Aletta, Ethiopia, March 7, and Athi River, Kenya Colony, August 30.

Oberholser[25] has recently created a genus *Painterius* for this species, but I do not consider its characters distinct enough to warrant recognition.

BUPHAGUS ERYTHRORYNCHUS ERYTHRORYNCHUS (Stanley)

Tanagra erythroryncha Stanley, *in* Salt, Travels in Abyssinia, Appendix, p. 59, 1814: Abyssinia.

Specimens collected:

1 adult male, 1 immature male, Dire Daoua, Ethiopia, December 4–10, 1911.
2 adult males, 2 adult females, Gato River near Gardula, Ethiopia, April 9–19, 1912.

Grote[26] has separated the birds of southern Africa, north to southern Tanganyika Territory, as *B. e. caffer*, the characters being larger size and much darker coloration than in the nominate form. Sclater[27] calls birds from as far north as Kenya Colony, Uganda, and the Mongalla province of the Sudan *caffer*, although Grote writes that the birds of the Lake Victoria region, etc., are intermediates between the two races. I have not enough southern material to investigate this matter, and therefore follow Sclater's list.

Grote gives the wing dimensions of Ethiopian birds as 105 to 114 mm. The present series vary in this measurement from 110 to 116 mm, and are thus fairly large examples. This may be due to the fact that they come from southern Ethiopia and approach the northern somewhat intermediate *caffer* type.

The immature bird is generally similar to the adults in plumage but has the head, throat, and breast much darker, about olive-brown, and has the bill dark brown (in dried skin) instead of reddish yellow.

The bird shot on December 4 is in a molting condition; the others are not obviously in molt but are in rather worn plumage. A mated pair was shot on April 19 at Gato River.

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[23] Proc. Acad. Nat. Sci. Philadelphia, vol. 83, p. 69, 1931.
[24] Ibis, 1916, pp. 400–401.
[25] Sci. Publ. Cleveland Mus. Nat. Hist., vol. 1, no. 3, p. 81, 1930.
[26] Orn. Monatsb., vol. 35, p. 13, 1927.
[27] Systema avium Æthiopicarum, pt. 2, p. 671, 1930.

Mearns made a good number of entries in his field book with regard to this bird. Inasmuch as it is impossible for me to draw a line on a map and thereby separate *caffer* from the nominate race, I give all the records here in their chronological order: At or near Aletta, March 7–13, 50 were seen; Loco, March 13–15, 100; Gidabo River, March 15–17, 100; the Abaya Lakes, March 18–26, 100; between the Abaya Lakes and Gardula, March 26–29, 10 birds; Gato River near Gardula, March 29–May 17, 100; Anole village, May 18, 4 birds; Tertale, June 7–12, 8 birds; Wobok, June 18, 10 seen; Yebo, June 20, 10 noted; Northern Guaso Nyiro River, July 31–August 3, 40 birds; Lekiundu River, August 4–8, 20 noted; Guaso Mara River, August 9, 20; Meru Forest and Kilindini, August 10, 20 birds; 20 miles east of Meru on trail to Tana River, August 11, 50 birds seen. It may be that the birds south to Yebo are to be considered as *erythrorynchus*, and those from the Northern Guaso Nyiro River and southward as *caffer*.

BUPHAGUS ERYTHRORYNCHUS CAFFER Grote

Buphagus erythrorhynchus caffer Grote, Orn. Monatsb., vol. 35, p. 13, 1927: Selala River, Transvaal.

Specimens collected: 1 female, Athi River, Kenya Colony, August 29, 1912.

As already mentioned under the typical race of the red-billed oxpecker, birds from Kenya Colony are identified as *caffer* to accord with the conclusions reached by Sclater. The present specimen, however, is not particularly dark or large (wing, 112 mm) and might just as well be called *erythrorynchus*.

Family NECTARINIIDAE, Sunbirds

NECTARINIA TACAZZE (Stanley)

Certhia tacazze Stanley, *in* Salt, Travels in Abyssinia, Appendix, p. 58, 1814: Abyssinia, probably from the Tacazze River.

Specimens collected:

- 1 immature male, Adis Abeba, Ethiopia, January 8, 1912.
- 6 adult males, 4 immature males, 2 adult females, Arussi Plateau, 9,000–10,500 feet, Ethiopia, February 17–28, 1912.
- 1 adult male, Lake Zwai, Ethiopia, March 1, 1912.
- 1 adult male, 1 immature male, Sidamo, Ethiopia, March 4, 1912.
- 3 adult males, 2 immature males, 2 adult females, Escarpment, Kenya Colony, September 4–9, 1912.

I have studied a series of 34 specimens from Ethiopia, the Kenya highlands, and Mount Kilimanjaro and have come to the conclusion that *jacksoni* and *unisplendens* are too inconstant in their characters to be recognized as racial forms. Sclater,[28] Granvik,[29] and others have also come to this decision, although van Someren[30] recognizes both *jacksoni* and *unisplendens.* I do not find that birds from the Kenya Highlands (*jacksoni*) are always more highly colored than Ethiopian examples, and the color of the sheen on the crown and occiput does not seem to be a reliable character either.

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[28] Systema avium Æthiopicarum, pt. 2, p. 683, 1930.

[29] Journ. für Orn., 1923, Sonderheft, pp. 224–226.

The adult males present the following size variations: Wing, 77–85 (average, 80.8); tail, 93–121 (average, 103.5); culmen, 28–31.5 (average, 30); tarsus, 18–20 (average, 18.6 mm). Females: Wings, 68–74 (average, 71.4); tail, 58.5–65 (average, 62.1); culmen, 27–28 (average, 27.6); tarsus, 18–19 (average, 18.2 mm).

Three of the males from Arussi Plateau, the one from Lake Zwai, and one from Sidamo are molting into breeding plumage. Their dates (late February and early March) agree with what Shelley[31] records when he says that the adult males retain their full breeding plumage only from April to November. That some males assume this feathering earlier than April is shown by some of the February specimens, which are in fresh breeding plumage. The data on molt given by Neumann[32] also agree. He writes that birds taken in September in Shoa are in perfect breeding plumage; that Djamdjam specimens taken in December show signs of postnuptial molt; that January and February birds (from southern Ethiopia) are in winter plumage; and that April birds are molting in nuptial feathering.

Heuglin[33] found this sunbird up to 13,000 feet in the mountains of northern Ethiopia. Blanford[34] saw them abundantly at 10,500 feet on the Eritrean–Ethiopian frontier and found birds in breeding plumage and condition at Senafé in May.

Neumann[35] found a nest with two eggs on September 19 at Tscheratsiha, in Shoa.

NECTARINIA KILIMENSIS KILIMENSIS Shelley

Nectarinia kilimensis Shelley, Proc. Zool. Soc. London, 1884, p. 555: Mount Kilimanjaro, about 5,000 feet.

Specimens collected: 1 adult male, 1 immature male, 1 adult female, Escarpment, 7,390 feet, Kenya Colony, September 4–9, 1912.

Sclater[36] lists three races of this sunbird—the typical one, *arturi* of Nyasaland and Southern Rhodesia, and *gadowi* of Angola. No mention is made of *filiola* Hartlaub, but, judged by the range given for *kilimensis*, the former seems to be considered a synonym of the latter. This, however, seems to me to be wrong; I find western birds more purplish, less greenish, bronze on the lower back, than typical *kilimensis*, and so prefer to recognize *filiola* as the form of western Uganda and the eastern Belgian Congo from the eastern Ituri to the Kivu district. Gyldenstolpe[37] also recognizes *filiola*. He states that the type locality, Njangalo, is in Tanganyika Territory. I have been unable to find Njangalo on any map, and judged from the date (April 27) on which Emin collected the type, and a careful reading of the itinerary of Stanley's Emin Pasha Relief expedition, this locality would seem to be between the southwest end of Lake Albert and the north shore of Lake Edward, nearer to the former than the latter. This would put it somewhere along the Uganda–Congo border, but not in Tanganyika Territory.

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[30] Nov. Zool., vol. 29, pp. 192–193, 1922.

[31] The birds of Africa, vol. 2, p. 27, 1900.

[32] Journ. für Orn., 1906, p. 257.

[33] Ornithologie Nordost-Afrika's, etc., vol. 1, p. 222, 1869.

[34] Observations on the geology and zoology of Abyssinia, p. 352, 1870.

[35] Journ. für Orn., 1906, p. 300.

[36] Systema avium Æthiopicarum, pt. 2, pp. 683–684, 1930.

Typical examples of *kilimensis* have slightly more strongly arched bills than do *filiola*, or even the birds from Kenya Colony (which are not wholly typical of the present race).

The adult male is in somewhat abraded plumage; the young male even more so. The latter resembles the adult female in coloration but is a little duller above, especially on the forehead and crown.

According to van Someren[38] this sunbird is a common species—

> * * * frequenting native gardens and the wild scrub-country. They were found nesting in June and November. The nest is usually attached to the end of some free-swinging twig about six to ten feet from the ground, and is made of grass, fibres, lichen, and bits of bark, bound together with cobwebs, the interior lined with down. * * * The eggs are pale creamy or bluish, thickly or sparingly spotted and streaked with ash-brown.

Alinder[39] found a nest with two eggs on the northwestern slopes of Mount Elgon on July 14.

NECTARINIA PULCHELLA LUCIDIPECTUS Hartert

Nectarinia pulchella lucidipectus Hartert, Nov. Zool., vol. 28, p. 123, 1921: Wad Medani, Blue Nile.

Specimens collected:

1 adult, 3 immature males, Sadi Malka, Ethiopia, December 21, 1911–January 29, 1912.
2 adult males, near Gardula, Ethiopia, March 28, 1912.
15 adult males, 1 immature male, 6 adult females, Gato River near Gardula, Ethiopia, April 2–May 14, 1912.
1 adult male, east of Lake Rudolf, Kenya Colony, May 25, 1912.
1 adult male, Womo River, north Lake Rudolf, Kenya Colony, May 30, 1912.

I have seen no material of typical *pulchella* and follow Sclater's list[40] in calling the present birds *lucidipectus*. This race is said to differ from the nominate one in having the reddish pectoral area brighter and more scarlet and also greater in extent, and in having the lateral pectoral patches more yellowish, less greenish. According to Gyldenstolpe [41] *lucidipectus* has the upperparts more greenish, less bronzy, than *pulchella*. Sclater notes that the two races are not always readily identifiable, and he also cautions that the form of Asben and adjacent parts of northern Nigeria, *aegra* Hartert, is somewhat doubtful in its status.

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[37] Kongl. Svenska Vet.-Akad. Handl., 1924, p. 85.
[38] Ibis, 1916, p. 447.
[39] Verh. Orn. Ges. Bayern, vol. 17, p. 261, 1927.
[40] Systema avium Æthiopicarum, pt. 2, p. 685, 1930.

If we assume, however, that *lucidipectus* is valid (which is a safe assumption), its range is as follows: Northwestern Kenya Colony (south to Mount Elgon) north through Ethiopia to Eritrea and through northern Uganda to the White Nile, along which it occurs as far as Khartoum, and also to Sennar and Nubia. It ranges west to the Bahr el Ghazal, where it has been taken at Wau.

The size variations of the adults are shown in table 68.

TABLE 68.—*Measurements of 26 specimens of* Nectarinia pulchella lucidipectus

Locality	Sex	Wing	Tail	Extent of central rectrices beyond rest of tail	Culmen	Tarsus
ETHIOPIA:		*Mm*	*Mm*	*Mm*	*Mm*	*Mm*
Sadi Malka	Male	60.0	80.0	34.0	16.0	15.0
Near Gardula	do	58.0	42.5	0.0	---------	16.0
Do	do	61.0	74.0	30.0	17.5	15.0
Gato River	do	57.0	73.0	31.0	16.0	15.5
Do	do	59.0	70.0	28.0	17.0	16.0
Do	do	59.0	72.5	27.0	17.5	15.0
Do	do	61.0	75.0	31.0	17.5	16.0
Do	do	58.0	75.0	32.0	17.0	15.5
Do	do	60.0	74.5	31.5	17.0	16.0
Do	do	59.0	43.5	0.0	17.0	15.0
Do	do	59.0	73.0	31.0	16.0	15.0
Do	do	59.0	73.5	32.0	16.0	16.5
Do	do	57.5	68.0	25.0	15.0	16.0
Do	do	59.5	81.0	37.0	17.5	16.5
Do	do	58.5	82.0	36.0	18.0	16.0
Do	do	60.0	75.0	31.0	16.5	15.0
Do	do	59.0	---------	---------	17.0	15.0
Do	do	59.0	81.5	38.0	16.5	15.0
KENYA COLONY:						
East of Lake Rudolf	do	56.0	85.5	43.0	18.5	15.0
North of Lake Rudolf	do	56.0	79.0	38.0	17.5	15.0
ETHIOPIA:						
Gato River	Female	43.5	38.0	---------	16.0	15.5
Do	do	52.0	36.5	---------	16.0	15.0
Do	do	53.0	39.0	---------	16.0	16.0
Do	do	53.0	37.0	---------	16.5	15.0
Do	do	55.0	40.0	---------	16.5	15.5
Do	do	54.0	38.0	---------	17.0	15.0

Two of the adult males (taken March 28) are in molt; all the others are in nuptial plumage. The immature males taken in

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[41] Kongl. Svenska Vet.-Akad. Handl., 1924, p. 86.

December and January are also in molt. A long series of February males from the southern Sudan are all in nonbreeding plumage. Sclater and Mackworth-Praed[42] have examined a fine series of Sudanese birds and find that they appear to retain the long tail feathers—

> * * * practically throughout the year until they become very worn in December when they are shed, and the new tail commences to sprout in January. The metallic breeding-dress commences soon after and is complete in from May to July. The winter birds resemble the females, but always retain traces of the metallic green on the shoulders and the long tail feathers, which appear to be only lost for the annual molt.

The species does not occur in the high mountains of Ethiopia, but only in the low plains and the hot valleys. The upper limit of its altitudinal range seems to be about 5,000 feet. Von Heuglin found it to be fairly numerous in Bogosland and in the lowlands of northern Ethiopia; Antinori and Ragazzi met with it in Shoa; Neumann obtained examples in the lake region of southern Shoa; Erlanger collected specimens in Arussi–Gallaland, the Hawash Valley, and in the Djamdjam district.

Mearns found three nests with two eggs each of this bird at Gato River near Gardula on May 1, 7, and 13. The nests are of the usual sunbird type—pendant, purse-shaped structures of fine grasses, plant fibers, and cobwebs, with some feathers mixed in, especially in the inside, and suspended from the tips of terminal branches of thorn trees, at elevations varying from 3 to 10 feet from the ground. The eggs, which were somewhat advanced in incubation in all three nests, average 17 by 12 mm; are rather tapering to a rounded point at the smaller pole; are dusky grayish with dark grayish and blackish markings, and a grayish ring around the unmarked larger pole.

One of the nests contained in addition to the two usual eggs, two other pale bluish ones spotted with dull lilac. These eggs are similar in size and shape to those described above, but their identification must be left an open matter.

NECTARINIA MELANOGASTRA NECTARINOIDES (Richmond)

Cinnyris nectarinoides Richmond, Auk, 1897, p. 158: Plains east of Kilimanjaro.

Specimens collected:

1 adult male, Tharaka district, Kenya Colony, August 13, 1912.
1 immature male, Tana River, Kenya Colony, August 16, 1912.

There are three races of this sunbird, as follows:

1. *N. m. melanogastra:* From Singida and Dodoma in Tanganyika Territory north to Ukamba, the Sotik, and south Kavirondo.

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[42] Ibis, 1918, p. 617.

2. *N. m. nectarinoides:* The Teita country north to the Tana River and the Northern Guaso Nyiro River.

3. *N. m. erlangeri:* The Lower Juba Valley and adjacent parts of extreme northeastern Kenya Colony.

The three may be identified by the following characters: The pectoral band is bright crimson or sometimes even deep scarlet in the nominate form, while it is dull brick red or orange-red in the other two. The yellow lateral pectoral patches are broad in *melanogastra*, narrow in *nectarinoides*, and lacking in *erlangeri*. *N. erlangeri beveni* van Someren[43] is a straight synonym. This form (*erlangeri*) is said to be like *nectarinoides* but to differ from it in having no marked yellow bar separating the red tips from the dark bases of the breast feathers, and further in having no yellow feathers on either side of this breast band. The last-named character may be sufficient to validate *erlangeri*, but the lack of a yellow bar between the red tips and dark bases of the breast feathers is not a significant feature, as the type of *nectarinoides* has no such yellow band, and neither does another male from Arusha. The race *nectarinoides* has the breast patch dull orange-red, not bright red as in *melanogastra*, and has very much less yellow on the sides of the breast than the latter race. The latter is also larger in size generally. In support of *erlangeri*, it should be noted that Mackworth-Praed[44] writes that a male from the Juba River, now in the British Museum, is much like *nectarinoides* but has no trace of a yellow pectoral tuft.

Van Someren[45] finds that birds from southern Kavirondo are larger (wings, 64–66 mm) than typical birds from Nguruman (wings, 58–60 mm). It may be that the western birds will prove to be separable. In a later paper[46] he considers *melanogastra* a race of *N. pulchella*, and makes *nectarinoides* and *erlangeri* races of the *N. erythrocerca*.

NECTARINIA REICHENOWI (Fischer)

Drepanorhynchus reichenowi Fischer, Journ. für Orn., 1884, p. 56: Lake Naivasha, Kenya Colony.

Specimens collected: 6 males, 2 females, Escarpment, 7,390 feet, Kenya Colony, September 6–10, 1912.

I have seen no material from Mount Elgon and therefore can not form an opinion as to the validity of *N. r. alinderi* Laubmann. Sclater[47] considers it indistinguishable from *reichenowi*.

The range of this sunbird, as given by Sclater, should be extended northward to include Mount Uraguess in northern Kenya Colony.

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[43] Journ. East Africa and Uganda Nat. Hist. Soc., no. 35, p. 64 (140), 1930.

[44] Ibis, 1917, p. 375.

[45] Nov. Zool., vol. 29, p. 193, 1922.

[46] Nov. Zool., vol. 37, p. 351, 1932.

[47] Systema avium Æthiopicarum, pt. 2, p. 686, 1930.

It is possible that the birds of that mountain may prove to be a distinct race, as they are smaller than others from Escarpment, Mount Kenya, and the Sotik district. Heller collected three specimens on Mount Uraguess, now in the United States National Museum. Two are adult males with wings of 74 and 75.5 mm, respectively; one is an adult female—wing, 66 mm. As opposed to these, 18 adult males from the other, more southern localities mentioned have wing lengths of from 77.5 to 83 mm; females, 67–72 mm.

Adult males vary considerably in the color of the sheen of the feathers of the back; in some there is almost no trace of coppery purple, while in others the purplish is the dominant tone.

This bird is common in the Kikuyu region, where it lives on the outskirts of wooded areas and in the thornbush country. It is numerous near Nairobi and other civilized centers and, consequently, has been observed and collected a good deal.

The only character on which the genus *Drepanorhynchus* rests is the yellow color of the margins of the remiges and rectrices. I do not consider this anything but specific in taxonomic value and therefore refer the name to the synonymy of *Nectarinia*. This was done years ago by Shelley,[48] but nevertheless recent workers have used *Drepanorhynchus* for this species.

Mearns noted about 200 of these birds at Escarpment, September 4–12.

CINNYRIS HABESSINICUS HABESSINICUS (Hemprich and Ehrenberg)

Nectarinia (*Cinnyris*) *habessinicus* HEMPRICH and EHRENBERG, Symbolae physicae, folio a, pl. 4, 1828: Eilet, Ethiopia.

SPECIMENS COLLECTED:

7 adult males, Ourso, Ethiopia, September 3–October 16, 1911 (Ouellard coll.).
9 adult males, Dire Daoua, Ethiopia, December 10–20, 1911.
1 adult male, Duletcha, Ethiopia, January 24, 1912.
1 adult male, 1 adult female, Sadi Malka, Ethiopia, January 28–29, 1912.
1 adult male, Hawash River, Ethiopia, February 6, 1912.
1 adult male, 1 immature male, Gato River near Gardula, Ethiopia, April 10–13, 1912.
2 adult males, 1 immature male, Bodessa, Ethiopia, Mayl 20–27, 1912.
1 adult male, 1 immature male, 2 adult females, Sagon River, Ethiopia, April 7 and June 3, 1912.
1 adult male, divide between Lakes Stefanie and Rudolf, Kenya Colony, June 2, 1912.

I have not seen any material of *C. h. alter* Neumann or of *C. h. turkanae* van Someren, and so can not form an opinion of them. The former, said to occur in northern Somaliland west to Harrar, is described as very similar to *habessinicus* but somewhat larger and with a longer and straighter bill (wing, males, 68–71 mm, as against 64–68 mm in males of *habessinicus;* culmen, 21.5–24 mm, as against

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[48] The birds of Africa, vol. 2, p. 31, 1900.

18.5–20 mm). Van Someren's race *turkanae* is said by its describer to differ from both *habessinicus* and *alter* in being larger (wings, 66–70 mm, as compared with 60–61 mm) and in having the red pectoral area wider and brighter; the throat green, not bluish; the mantle and rump and upper tail coverts golden-green. The size character seems to be of little value, and I find enough variation in color in the present series to cast some doubt on the color characters of *turkanae*. I follow Sclater[49] in synonymizing *alter* and *turkanae* with *habessinicus*, for the present at least.

The dimensions of the present series of adults are shown in table 69.

TABLE 69.—*Measurements of 27 specimens of* Cinnyris habessinicus habessinicus

Locality	Sex	Wing	Tail	Culmen	Tarsus
ETHIOPIA:		*Mm*	*Mm*	*Mm*	*Mm*
Ourso	Male	66.0	47.0	21.5	14.5
Do	do	67.0	45.0	22.5	15.0
Do	do	72.5	51.0	24.0	15.5
Do	do	67.0	47.5	22.0	15.0
Do	do	69.0	50.0	22.0	15.5
Do	do	65.0	46.5	23.0	17.0
Do	do	65.0	46.0	21.0	14.0
Dire Daoua	do	67.0	47.0	22.0	16.0
Do	do	68.0	49.0	22.0	---------
Do	do	67.0	47.0	22.0	16.5
Do	do	70.0	53.0	---------	16.5
Do	do	69.0	49.0	21.0	16.5
Do	do	66.0	47.0	21.0	16.5
Do	do	67.0	47.0	22.5	17.0
Do	do	68.0	50.0	22.0	17.0
Do	do	70.0	50.0	22.5	17.0
Duletcha	do	69.5	50.0	22.5	15.5
Sadi Malka	do	69.0	49.5	21.0	16.0
Hawash River	do	70.5	49.0	22.5	16.5
Gato River	do	68.5	46.0	22.0	16.0
Bodessa	do	67.0	49.5	21.0	17.0
Do	do	66.0	49.0	21.5	16.0
Sagon River	do	66.0	45.0	21.5	16.0
KENYA COLONY: Between Lake Stefanie and Lake Rudolf.	do	66.0	45.5	22.0	16.0
ETHIOPIA:					
Sadi Malka	Female	61.0	41.0	20.0	16.0
Sagon River	do	60.0	42.0	20.0	15.5
Do	do	60.0	43.0	19.0	15.0

These figures indicate that *habessinicus* and *alter* and *turkanae* are not so distinct as Neumann's and van Someren's data seemed to indicate.

The birds taken in September and October are in worn plumage; the December ones are partly worn, partly in molt, and partly in fresh plumage; adults taken in January and February and later are all in rather fresh feathering.

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[49] Systema avium Æthiopicarum, pt. 2, 688, 1930.

This sunbird occurs from the Red Sea Province of the Sudan through Eritrea and Ethiopia to Somaliland and Jubaland, Rendileland to Turkanaland in northeastern Uganda and to Kordofan. In southwestern Arabia it is replaced by another race *hellmayri.*

Blanford [50] found this bird very common both in the coastal belt and up to an altitude of 4,000 feet above the sea. He found birds in molt and others in full fresh plumage in January and February. Specimens in full plumage were taken by various collectors in Shoa from March to October. Erlanger [51] found the bird breeding early in April in Gurraland. Lort Phillips [52] found it nesting early in March on Wagga Mountain, in the Goolis Range of British Somaliland.

Mearns noted some 500 of these birds at Gato River near Gardula, March 29–May 17; at Anole village, May 18, he saw 4; Sagon River, May 19, 10 noted; Bodessa, May 19–June 3, 200 birds; Sagon River, June 3–6, 40 were seen.

CINNYRIS MARIQUENSIS SUAHELICUS Reichenow

Cinnyris suahelica Reichenow, Journ. für Orn., 1891, p. 161: Tabora district, Tanganyika Territory.

Specimens collected: 2 adult males, 4 immature males, 3 adult females, Tana River, Camp No. 6, Kenya Colony, August 21–22, 1912.

Both van Someren [53] and Sclater [54] suggest that *Helionympha raineyi* Mearns is a synonym of this bird. Mearns based his new "species" on two specimens, not on one, as his published account indicates, and both of them have been available for study in the present connection. They are unquestionably the same as *Cinnyris mariquensis suahelicus*, although they both happen to have slightly longer bills than the series of that race in the United States National Museum. The elongated central rectrices, supposed to set off the genus *Helionympha*, do not differ appreciably in any way from those of the present species.

In northeastern and eastern Africa there are three races of this sunbird, and it is highly possible that a fourth may be demonstrated to exist in the northern portions of Kenya Colony. The three named races are as follows:

1. *C. m. hawkeri:* British Somaliland. This form, which I have not seen, is considered identical with *osiris* by van Someren, but it is recognized by Sclater. It is said to be like *osiris* but to have a darker brownish-red breast band and to have a purer green, less bronze or coppery, sheen on the upperparts.

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[50] Observations on the geology and zoology of Abyssinia, p. 351, 1870.

[51] Journ. für Orn., 1907, pp. 56–57.

[52] Ibis, 1896, p. 81; and 1898, pp. 402–403.

[53] Nov. Zool., vol. 29, p. 195, 1922.

[54] Systema avium Æthiopicarum, pt. 2, p. 690, 1930.

2. *C. m. osiris:* Eritrea and Ethiopia south to northern Kenya Colony and northeastern Uganda. Van Someren writes that he feels certain that "when more specimens are available from Baringo and Northern Frontier district, they will prove to be distinct. I fail to separate the South Abyssinian birds from the typical North Abyssinian race (*osiris*), with which my Moroto specimens agree very well."

Berger[55] writes that birds from Lake Baringo and southward to Solei agree with others from Bogosland, but the blue of the rump is more steel blue in shade in the southern birds. This race differs from *suahelicus* in having the posterior margin of the throat more violet-red, less steel blue.

3. *C. m. suahelicus:* Eastern Uganda, central Kenya Colony, south through Tanganyika Territory to the northern end of Lake Nyasa.

The young males resemble the females but have dark, almost solid black throats and are generally somewhat larger as well. One of the young birds, collected on August 22, is well advanced in its molt into adult plumage, while the other immature specimens show no sign of molt but are in full immature plumage. Schuster[56] obtained a molting bird at Dar es Salaam on April 14, so it would seem that with two molting seasons there would be two breeding seasons. Van Someren[57] found a nest at Kioumu in July. He writes that it was "composed entirely of cotton-wool and vegetable-down, and lined with feathers. * * * The eggs are creamy white or pale greenish, with a few brownish specklings toward the larger end." Bowen[58] obtained males in breeding condition in the Ikoma region, Tanganyika Territory, June 21–23.

CINNYRIS MARIQUENSIS OSIRIS (Finsch)

Nectarinia osiris Finsch, Trans. Zool. Soc. London, vol. 7, p. 230, 1870: Senafe, Abyssinia.

Specimens collected:

5 adult males, Ourso, Ethiopia, September 4–November 15, 1911 (Ouellard coll.).
3 adult males, 1 juvenal male, Dire Daoua, Ethiopia, November 30–December 22, 1911.
1 adult male, Serre, Ethiopia, February 13, 1912.
4 adult males, 3 juvenal males, 4 adult females, Bodessa, Ethiopia, May 20–31, 1912.
3 adult males, 2 juvenal males, Tertale, Ethiopia, June 7–10, 1912.
1 adult male, El Ade, Ethiopia, June 13, 1912.
1 adult female, Turturo, Ethiopia, June 16, 1912.

The range and characters of this race have already been stated and need not be repeated here.

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[55] Journ. für Orn., 1911, p. 520.
[56] Journ. für Orn., 1926, p. 735.
[57] Ibis, 1916, p. 445.
[58] Proc. Acad. Nat. Sci. Philadelphia, vol. 83, p. 70, 1931.

Neumann[59] considers birds from the Hawash River south of the Sekwala Mountains, from Mole River, and from Shoa as intermediate between *osiris* and *hawkeri* but nearer the latter. Zedlitz[60] considers *osiris* restricted to Eritrea, northern and central Ethiopia, and *hawkeri* from northern Somaliland to Shoa. I have seen no topotypical *osiris* and no material of *hawkeri* and therefore follow Sclater in considering the present birds *osiris*.

The majority of the adults are in somewhat, or at least slightly, worn plumage. A male shot on November 30 at Dire Daoua is in molting condition.

The males have wing lengths of 62–68 mm; tail, 42–9; culmen, 18.5–20; tarsus, 15–17 mm. Females: Wing, 59–61.5; tail, 40–42; culmen, 18–19 mm; tarsus, 15–16 mm.

Besides the specimens collected, Mearns observed this bird as follows: Aletta, March 7–13, 50 birds; Gidabo River, March 15–17, 10 seen; Abaya Lakes, March 18–20, 15 birds; Bodessa, May 19–June 3, 100; Sagon River, June 3–6, 30 seen; Tertale, June 7–12, 300; El Ade, June 12–13, 50; Mar Mora, June 14–15, 50; Turturo, June 15–17, 100; Anole, June 17, 6 birds; Wobok, June 18, 10 seen; Saru, June 19, 10 noted; Yebo, June 20, 5 birds; Chaffa, June 23–24, 5 birds observed.

Since this account was written van Someren[60a] has recorded this sunbird from Weiwei River, Kapenguria, Southwest Rudolf, Meru, and Archers Post.

CINNYRIS VENUSTUS BLICKI Mearns

FIGURE 20

Cinnyris venusta blicki MEARNS, Proc. U. S. Nat. Mus., vol. 48, p. 386, 1915: South shore of Lake Stefanie.

SPECIMENS COLLECTED:

1 adult male, El Ade, Ethiopia, June 12, 1912.
1 adult male, Anole, Ethiopia, June 17, 1912.
2 adult males, Lake Stefanie, south, Kenya Colony, May 17, 1912.
2 adult females, 3 immature males, 25 miles southeast of Lake Rudolf, Kenya Colony, July 12–13, 1912.
1 adult female, Mount Nyero, 35 miles south of Lake Rudolf, Kenya Colony, July 13, 1912.
3 adult females, Indunumara Mountains, Kenya Colony, July 13–14, 1912.
1 adult male, 18 miles south of Malele, Kenya Colony, July 28, 1912.
1 adult male, 24 miles south of Malele, Kenya Colony, July 29, 1912.

Soft parts: Iris dark brown; bill, feet, and claws black.

Sclater[61] considers *blicki* a synonym of *fazoqlensis* Heuglin, but in this I feel he is mistaken. The latter has the entire belly, sides, and flanks pale yellow, while *blicki* has these parts white with a median yellowish area on the belly. I consider it nearer to *albiventris* than to *venustus*, and feel that these two "species" are really one specific group with white-bellied and yellow-bellied races.

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[59] Journ. für Orn., 1906, p. 251.

[60] Ibis, 1911, p. 60.

[60a] Nov. Zool., vol. 37, p. 353, 1932.

[61] Systema avium Æthiopicarum, pt. 2, p. 692, 1930.

Van Someren[62] records *blicki* from Marsabit, Kauro, and Koroli and states that birds from Turkwell, Kerio, and Lake Rudolf are distinct from them and are probably intermediates between *blicki* and *C. v. falkensteini:* He records *albiventris* from Serenli, Mandaira, and Neboi, and writes that it "would be of great interest to ascertain at what point this species meets with *blicki*, and whether there is any intergrading."

The present series illustrates that there is such intergrading in the country south of Malele north to the Indunumara Mountains. Thus, two males from 18 and 24 miles south of Malele, respectively, have only a faint, pale primrose-yellow midabdominal area, while the type and topotype of the race (from the south shore of Lake Stefanie) have this region primuline yellow, and the bird from El Ade has some of the feathers tipped with light orange-yellow. Apparently the Turkwell birds of van Someren's paper are like these typical *blicki*, which is, in the last estimate, a race bridging the gap between *falkensteini* and *albiventris.*

There are five races of this sunbird in northeastern and equatorial east Africa, as follows:

1. *C. v. albiventris:* British and Italian Somaliland, west to the Webbe in Gallaland, and south to Jubaland and to Lamu in Kenya Colony. In the Malele district it intergrades with the next form.
2. *C. v. blicki:* Extreme southern Shoa, northeastern Uganda, and the Rendile country of northern Kenya Colony, south to Malele where it meets with *albiventris.*
3. *C. v. fazoqlensis:* Eritrea and Ethiopia south to approximately the country just north of Lake Stefanie.
4. *C. v. falkensteini:* The interior of the southern half or so of Kenya Colony from Mount Elgon and Fort Hall, east to Mount Kilimanjaro, then south through Tanganyika Territory (where it reaches the coast) to northeastern Mozambique, south along the coast to Lumbo. In southwestern Tanganyika Territory it begins to merge into *niassae* of Nyasaland and Rhodesia.
5. *C. v. igneiventris:* Uganda, Ruanda, Urundi, and the eastern Belgian Congo south to the Kivu Volcanoes. In eastern Uganda it intergrades with *falkensteini*, the meeting ground of the two being just west of Entebbe.[63]

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[62] Journ. East Africa and Uganda Nat. Hist. Soc., no. 35, p. 65 (141), 1930.

[63] See Ogilvie-Grant, Trans. Zool. Soc. London, vol. 19, p. 325, 1910.

These five forms may be identified by the following characters: *albiventris* has the entire belly, sides, flanks, and under tail coverts white; *blicki* is similar but has the middle of the belly pale yellowish; *falkensteini* and *fazoqlensis* have the abdomen wholly yellowish, but the former has this color a deeper, slightly more orange shade than the latter; *igneiventris* has the upper half of the abdomen bright orange, the rest yellow.

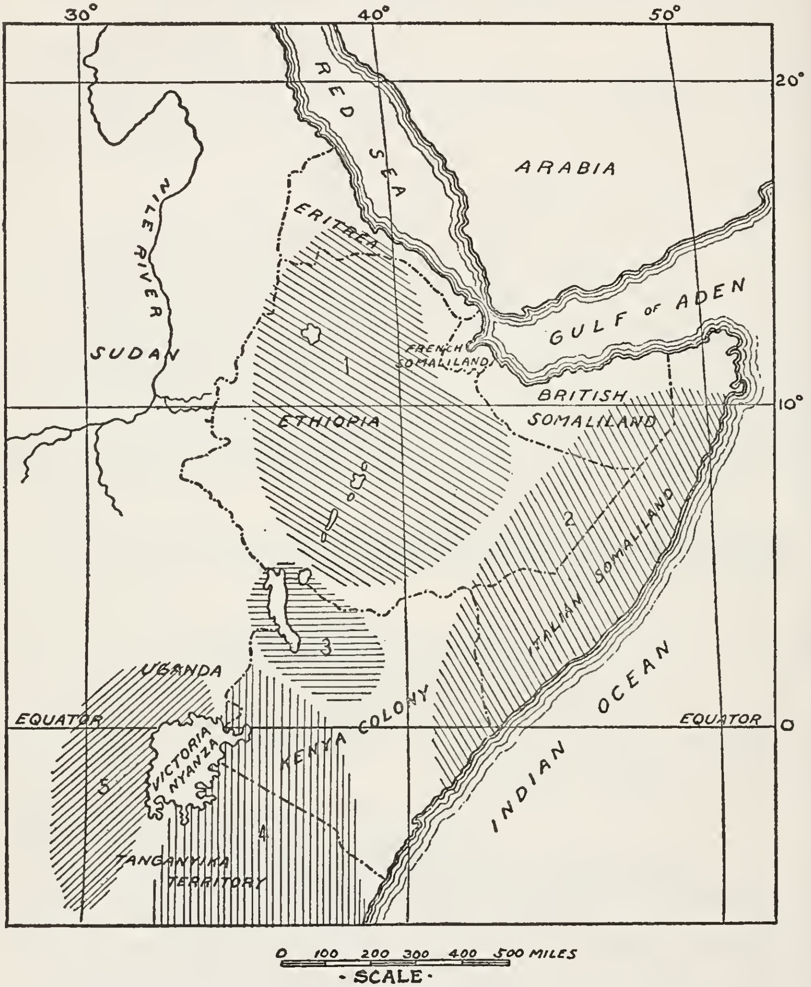
30°
40°
50°
20°
10°
0
RED SEA
ARABIA
NILE RIVER
ERITREA
SUDAN
FRENCH SOMALILAND
GULF OF ADEN
BRITISH SOMALILAND
ETHIOPIA
1
2
ITALIAN SOMALILAND
3
UGANDA
EQUATOR
OCEAN
EQUATOR
KENYA COLONY
VICTORIA NYANZA
5
INDIAN
4
TANGANYIKA TERRITORY
0 100 200 300 400 500 MILES
· SCALE ·

FIGURE 20.—Distribution of *Cinnyris venustus* in northeastern Africa.

1. *C. v. fazoqlensis.*
2. *C. v. albiventris.*
3. *C. v. blicki.*
4. *C. v. falkensteini.*
5. *C. v. igneiventris.*

A sixth form, *sukensis*, has recently been described by van Someren[64] from the area south and southwest of Lake Rudolf to

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[64] Nov. Zool., vol. 37, p. 354, 1932: Turkwell River.

Mount Elgon, characterized as intermediate between *blicki* and *igneiventris.* This may well be a valid form, but I have seen no material of it.

The present series is the one on the basis of which Mearns described *blicki.* In the original description of this bird he stated that it was smaller than *falkensteini,* but this is not so. The measurements of the present adults are tabulated as evidence of this fact (table 70).

TABLE 70.—*Measurements of 12 specimens of* Cinnyris venustus blicki

Locality	Sex	Wing	Tail	Culmen	Tarsus
ETHIOPIA:		*Mm*	*Mm*	*Mm*	*Mm*
El Ade	Male	53.0	33.0	16.0	16.0
Anole	do	53.0	36.0	16.5	15.5
KENYA COLONY:					
18 miles south Malele	do	51.0	35.0	15.5	16.0
24 miles south Malele	do	53.0	36.5	15.0	15.0
South of Lake Stefanie	do	54.0	40.0	16.0	16.0
Do	do	52.0	39.0	16.0	16.0
25 miles southeast Lake Rudolf	Female	48.0	30.0	16.0	14.5
Do	do	49.0	30.0	15.0	15.5
Mount Nyero	do	52.0	33.5	15.0	15.0
Indunumara Mountains	do	48.5	32.0	15.5	15.0
Do	do	48.0	32.5	15.0	14.5
Do	do	48.5	31.0	16.0	15.0

The immature males are molting into adult plumage. The molt begins on the throat with the appearance of glossy violet feathers there; the upper wing coverts are the next feathers to be affected; then come the scapulars and some of the interscapulars and the rectrices; then the rump, lower back, breast, crown, and the center of the abdomen begin to show yellowish feathers.

The two adult males taken on May 17, one collected June 17, and one, July 29, are in worn plumage, as are the females. The male from El Ade, June 12, is in molt.

Nothing seems to be known of the breeding season of *blicki*, but Erlanger[65] found a nest with eggs of *albiventris* on April 21 in the Ganale Valley, and another on May 3 at Karo-Lola in the Garre-Lewin district. Mearns observed this bird at the following places: Tertale, June 12, 4 seen; El Ade, June 13, 4 birds; Mar Mora, June 14, 2 noted; Turturo, June 15–17, 10 seen; Anole, June 17, 10; Wobok, June 18, 10 birds; Yebo, June 19, 2 seen; Chaffa, June 23, 1 noted, 10–25 miles southeast of Lake Rudolf, July 12, 50; Nyero Mountain, July 13, 100; Indunumara Mountains, July 13–18, 30; Endoto Mountains, July 21–24, 50; Er-re-re, July 25, 20 birds; Le-se-dun, July 26, 20 seen; Malele, July 27, 20 birds; 18 miles south of Malele, July 28, 4 birds seen.

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[65] Journ. für Orn., 1907, p. 55.

CINNYRIS VENUSTUS FAZOQLENSIS (Heuglin)

FIGURE 20

Nectarinia fazoqlensis HEUGLIN, Ornithologie Nordost-Afrika's, etc., vol. 2, pt. 2, p. lxx, 1871: South of Fazogli Mountain.

SPECIMENS COLLECTED:

1 adult male, Ourso, Ethiopia, October 16, 1911 (Ouellard coll.).
1 adult female, Gada Bourca, Ethiopia, December 26, 1911.
1 adult male, 1 immature male, 1 adult female, Arussi Plateau, 9,000 feet. Ethiopia, February 20–21, 1912.
2 immature males, Botola, Sidamo, Ethiopia, March 5, 1912.
1 immature male, 1 adult female, Bodessa, Ethiopia, May 27–31, 1912.

The range and characters of this form have already been discussed and need not be repeated here.

The immature birds are in postjuvenal molt; the adults are in worn plumage. The dimensions of the latter are as follows: Males—wing, 54, 55; tail, 37, 37; culmen, 16, 18; tarsus, 15, 15.5. Females—wing, 45.5, 48, 50 tail, 31, 31.5, 32.5; culmen, 14, 15, 16; tarsus, 14, 15, 15 mm, respectively.

Zedlitz[66] states that in northern Ethiopia and Eritrea this bird has a greater altitudinal range than in southern Shoa, where it is more restricted to the hot valleys. According to the data compiled by Shelley,[67] it breeds in April and May. Blanford found fledged young in July along the Eritrean–Ethiopian boundary.

Besides the specimens collected, Mearns noted this race as follows: Aletta, March 7–13, 10 seen; Bodessa, May 19–June 3, 10 birds; Sagon River, June 3–6, 10 seen; Tertale, June 7, 4 noted.

CINNYRIS VENUSTUS FALKENSTEINI Fischer and Reichenow

FIGURE 20

Cinnyris falkensteini FISCHER and REICHENOW, Journ. für Orn., 1884, p. 56: Lake Naivasha.

SPECIMENS COLLECTED: 1 male, 2 females, Tana River, Kenya Colony, August 17–18, 1912.

All three specimens are in fairly fresh plumage. The male has the following dimensions: Wing, 55.5; tail, 38; culmen, 16.5; tarsus, 15 mm. The two females: Wing, 46, 50; tail, 30, 33; culmen, 15, 16.5; tarsus, 15, 15.5 mm.

This bird is very common in Kenya Colony and in Tanganyika Territory. Bowen[68] found a recently finished nest on July 10, along the Southern Guaso Nyiro River, Kenya Colony.

Besides these 3 specimens collected, Mearns noted about 75 others along the Tana River, August 15–23.

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[66] Journ. für Orn., 1911, pp. 58–59.
[67] The birds of Africa, vol. 2, pp. 64–66, 1900.
[68] Proc. Acad. Nat. Sci. Philadelphia, 1931, p. 70.

CINNYRIS MEDIOCRIS MEDIOCRIS Shelley

Cinnyris mediocris SHELLEY, Proc. Zool. Soc. London, 1885, p. 228: Mount Kilimanjaro, 12,000 feet.

SPECIMENS COLLECTED: 7 adult males, 2 adult females, 1 juvenal female, Escarpment, 7,390 feet, Kenya Colony, September 5–10, 1912.

I have examined the types and the paratypical series of *keniensis* Mearns[69] and of *garguensis* Mearns[70] and have come to the conclusion that they are not separable from *mediocris*. Sclater[71] has reached the same results. Four specimens from the Usambara Mountains, Tanganyika Territory, are very similar to the present series, and I am not convinced of the validity of *usambaricus* Grote.[72] In an earlier paper[73] Grote states that the Usambara birds are intermediate between *mediocris* and *fülleborni*. The Kilimanjaro birds (*mediocris*) have the abdomen grayer, the Nyasaland ones (*fülleborni*) olive-green, and the Usambara birds yellowish. My examination of the series of *garguensis* (said to be grayer below than either *keniensis* or *mediocris*), of *keniensis*, and of *mediocris* inclines me to doubt the validity of the Usambara form. I have seen no material of *fülleborni* but it seems to be generally accepted as a recognizable race.

Van Someren[74] says that *garguensis* may be admitted as a good form, characterized by its paler belly and the absence of a deep blue breast-band. The type and two other adult males of *garguensis* have, however, deep blue breast bands, although not so extensive ones as in *mediocris*, and the ventral coloration varies greatly among them. It may be that *garguensis* will prove to be a race based on slight average characters, but for the present I consider it of doubtful status.

The alleged size difference between *keniensis* and *mediocris* is too small to be of systematic significance. Thus, the present 7 adult males have wings of from 53 to 55 mm in length; 9 similar birds from Mount Kenya have wings ranging from 53 to 56.5 mm; 9 males from Mount Kilimanjaro have wing lengths of from 52 to 55.5 mm.

Van Someren suggests that Mount Elgon birds may be slightly different from those of the highlands farther east, but no western material has been available to me for study.

The range of *mediocris* is more extensive than Sclater's brief statement indicates. It occurs from Kilimanjaro and the Usambara Mountains in the southeast north to Mount Garguess and west to Mount Elgon and the Subugo Forest in Uganda.

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[69] Smithsonian Misc. Coll., vol. 56, no. 14, p. 4, 1910: Mount Kenya, 7,500 feet.

[70] Proc. U. S. Nat. Mus., vol. 48, p. 387, 1915: Mount Garguess, 7,100 feet.

[71] Systema avium Æthiopicarum, pt. 2, p. 695, 1930.

[72] Orn. Monatsb., 1922, p. 86: Mlala, Usambara Mountains.

[73] Journ. für Orn., 1921, p. 134.

[74] Nov. Zool., vol. 29, p. 198, 1922.

Recently, van Someren[75] has concluded that *keniensis* is a valid race. "The males," he says, "are paler below on the belly, and the females have the throat tinged with greyish. * * * Males with the palest olive bellies are found on the Aberdares." He had 28 specimens of *keniensis* and 16 of *mediocris* from Kilimanjaro. I still consider *keniensis* as a doubtful form.

CINNYRIS REICHENOWI REICHENOWI Sharpe

Cinnyris reichenowi Sharpe, Ibis, 1891, p. 444; Sotik.

Specimens collected: 1 male, Escarpment, 7,390 feet, Kenya Colony, September 6, 1912.

This specimen is the type of *C. r. kikuyuensis* Mearns. This race was described by Mearns[76] on the basis of this single example, and was stated to differ from *reichenowi* in being smaller and more grayish, less ochraceous on the abdomen. Gyldenstolpe[77] writes that from "the material at hand this form must * * * be recognized. It is slightly smaller than typical *Cinnyris reichenowi reichenowi*, the males having wing-measurements of 51–52 mm. The differences are, however, very slight indeed, and when more material becomes available for examination it may prove, that the alleged differences are not constant." I have seen two more Kenya males and a pair from Ruwenzori and one male from Ruanda, and find that the race *kikuyuensis* can not be upheld on the basis of adult males. Van Someren[78] writes that the race is recognizable but that females show the differences better than the males.

The data recorded by Granvik[79] militate against the validity of *kikuyuensis*. His series from Mount Elgon contained some individuals with dark, uniform olive-brown bellies, and others with lighter olive-green underparts, paler toward the sides. This indicates sufficient variation in color to throw doubt on this character of *kikuyuensis*. Granvik's birds are, however, fairly large like western typical ones—wings, 54–58 mm. For the present, at least, *kikuyuensis* may be synonymized with *reichenowi*.

This race (assuming the identity of *kikuyuensis*) ranges from Sotik, Escarpment, Mount Kenya, and Mount Garguess west to Mount Elgon, Ruwenzori, and the Kivu Volcanoes. Sclater[80] calls *stuhlmanni* Reichenow a race of this bird replacing it on the higher reaches of Ruwenzori, but in this he apparently is mistaken. I think that Reichenow was wholly correct when he stated[81] it was nearest to *C. afer.* I consider it a subspecies of that form and not of *reichenowi.* Woosnam[82] may be responsible for Sclater's disposition of *stuhlmanni* as he writes that—

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[75] Nov. Zool., vol. 37, p. 355, 1932.
[76] Proc. U. S. Nat. Mus., vol. 48, p. 388, 1915.
[77] Kongl. Svenska Vet. Akad. Handl., 1924, p. 93
[78] Nov. Zool., vol. 29, p. 199, 1922.
[79] Journ. für Orn., 1923, Sonderheft, pp. 221–222.
[80] Systema avium Æthiopicarum, pt. 2, p. 696, 1930.
[81] Orn. Monatsb., 1893, p. 61.

> * * * it is a curious fact that, except for its larger size, this Sun-bird exactly resembles in every detail *C. reichenowi,* a species which is found 3,000 ft. lower down the mountains, and which also inhabits the surrounding plains. Possibly this increase in size is the result of the cooler climate at higher altitudes.

The present specimen is in somewhat worn plumage.

CHALCOMITRA SENEGALENSIS LAMPERTI (Reichenow)

Cinnyris senegalensis lamperti REICHENOW, Journ. für Orn., 1897, p. 196: Moschi, Tanganyika Territory.

SPECIMENS COLLECTED:

1 adult male, 1 immature male, Tharaka district, Kenya Colony, August 14, 1912.
3 immature males, 2 adult females, Tana River, Kenya Colony, August 21–22, 1912.
1 adult male, Thika River, Kenya Colony, August 27, 1912.

The adult male from Tharaka is the type of *C. s. atra* Mearns.[83] In studying these birds I have reidentified all the material of the species in the United States National Museum, totaling some 51 specimens of 5 subspecies. I find that Gyldenstolpe's revision,[84] as modified by Sclater,[85] works very well.

The present race, which differs from the Uganda and west Kenyan form *aequatorialis*, in having the female less yellowish below, and from the coastal subspecies *inaestimata* in having no metallic purple lesser upper wing coverts, occurs from the Kilimanjaro district west to the Rift Valley.

Van Someren[86] writes that he obtained *lamperti* (called *atra* in his paper) at Lamu on the coast, together with *inaestimata.* I have seen no birds from Lamu but I wonder whether van Someren's *lamperti* from there was not possibly an aberrant example of *inaestimata.* I do not see that the forms with metallic lesser upper wing coverts ("*gutturalis*" group) are really specifically distinct from the "*senegalensis*" group as Gyldenstolpe decided, and so I find it difficult to believe that *lamperti* and *inaestimata* occur together as breeding birds. It is not unlikely that eventually it will be agreed that *hunteri* and *cruentata* are also conspecific with *senegalensis.* Neumann[87] has already made this suggestion.

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[82] Trans. Zool. Soc. London, vol. 19, p. 330, 1910.
[83] Proc. U. S. Nat. Mus., vol. 48, p. 388, 1915.
[84] Kongl. Svenska Vet.-Akad. Handl., 1924, pp. 95–99.
[85] Systema avium Æthiopicarum, pt. 2, pp. 700–701, 1930.
[86] Nov. Zool., vol. 29, pp. 199–200, 1922.
[87] Journ. für Orn., 1906, p. 252.

The two adult males are in fresh plumage as is one of the females; the other female is in molt. All the young males are molting into adult plumage.

Birds in breeding condition have been taken in June.

Besides the specimens collected, Mearns noted this sunbird as follows: Tharaka district, August 13–14, 30 seen; Tana River, August 15–23, 250; junction of Tana and Thika Rivers, August 23–26, 20 seen; Bowlder Hill, August 27, 10 birds; west of Ithanga Hills, August 28, 10 seen, between Thika and Athi River, August 29, 2 birds; Athi River, August 30, 6 birds seen.

CHALCOMITRA HUNTERI (Shelley)

Cinnyris hunteri Shelley, Proc. Zool. Soc. London, 1889, p. 365, pl. 41, fig. 2: Useri River, base of Kilimanjaro.

Specimens collected:

1 adult male, 1 immature female, Turturo, Ethiopia, June 16, 1912.
1 immature male, 25 miles southeast of Lake Rudolf, Kenya Colony, July 12, 1912.
1 adult male, Indunumara Mountains, Kenya Colony, July 14, 1912.
1 adult male, 1 immature male, near Endoto Mountains, Kenya Colony, July 19, 1912.
1 adult female, 18 miles south of Malele, Kenya Colony, July 28, 1912.
1 adult male, 24 miles south of Malele, Kenya Colony, July 29, 1912.
1 adult male, 1 adult female, Lekiundu River, Kenya Colony, August 5, 1912.

Hunter's sunbird occurs from the northeastern Tanganyika–Kenya border (near Kilimanjaro) north through the Taveta and Teita districts to northern Somaliland, west through Gallaland and extreme southern Shoa to Turkanaland in northeastern Uganda. It is a bird of the dry thornbush country. It is the geographical counterpart of *cruentata* and may be really conspecific with that form. The two differ in the color of the rump and upper tail coverts of the adult male; these parts are metallic purple in *hunteri* and dull black, like the back, in *cruentata*.

Van Someren[88] writes that more material from northeastern Uganda may reveal a distinct form there. He finds no difference in males from there and from Kenya Colony and suggests that females may differ. I have seen no Turkwell material and can not add any definite data, but it may be that *hunteri* has a northwestern race, because the adult male from Turturo has the bright pectoral area a little more orange, less deep scarlet-red, than in more southern birds. Witherby,[89] however, records a male from El Dab, Somaliland, that has the gorget orange instead of crimson; "the other metallic colours have altered, probably owing to the carbolic powder which was sprinkled among the birds in the box in which they were packed." In the case of the Turturo bird, the other metallic colors are not different from those in Kenyan specimens.

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[88] Nov. Zool., vol. 29, p. 199, 1922.
[89] Ibis, 1905, p. 511.

The Turturo birds are in worn plumage; the Kenya birds are in molt or in very fresh plumage. This difference in abrasion may also account for the lighter, more orange color of the breast of the Ethiopian male.

Nothing seems to have been recorded of the breeding habits or season of this species.

Mearns noted this species as follows: 10–25 miles southeast of Lake Rudolf, July 12, 10 birds seen; Indunumara Mountain, July 13–18, 16 seen; Endoto Mountains, July 18–24, 40; Er-re-re, July 25, 6 birds; Le-se-dun, July 26, 4 seen; Malele, July 27, 2 noted; 18–24 miles south of Malele, July 28–29, 30 birds; Northern Guaso Nyiro River, July 31–August 3, 4 seen; Lekiundu River, August 4–8, 20 noted; Guaso Mara River, August 9, 2 seen; Meru forest, August 10, 4 birds; 20 miles east of Meru, August 11, 10 birds seen; Tharaka district, August 12, 10 seen; Tana River, August 14–16, 40 birds observed.

CHALCOMITRA CRUENTATA (Rüppell)

Nectarinia cruentata Rüppell, Systematische Uebersicht der Vögel Nordost-Afrika's, p. 26, pl. 1, 1845: Simien Province, Abyssinia.

Specimens collected:

1 adult male, Ourso, Ethiopia, September 6, 1911.
1 adult male, 1 immature male, Gidabo River, Ethiopia, March 16–17, 1912.
1 adult male, Bodessa, Ethiopia, May 27, 1912.
1 adult male, Konso, Ethiopia, May 7, 1912.

I have seen no topotypical material of *cruentata* and therefore can not decide on the validity of *scioana* Salvadori. Neumann[90] recognizes *scioana* and states that it differs from *cruentata* in being larger (wings—male, 72–74 mm, as against 69 mm in the latter) and that the crossbars in the red breast patch are steel blue or violet-blue in *scioana* and greenish blue in *cruentata*. Other investigators, however, such as Shelley,[91] Ogilvie-Grant,[92] and Gyldenstolpe[93] have all decided against the validity of *scioana*, and Sclater[94] does not recognize it. I follow Sclater in this matter as in all cases where I have not been able to decide for myself from actual specimens. Two typical *cruentata* males from Amhara (in Field Museum) have no green on the black throat mark.

The Ourso bird, obtained from M. Ouellard, is in worn plumage; all the others are in fresh feathering. The birds are large and agree with the figures given by Neumann for *scioana*. They have wings of 73.5–75 mm; tail, 54.5–56 mm; culmen, 25–26 mm; tarsus, 16–17 mm.

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[90] Journ. für Orn., 1906, p. 252.
[91] The birds of Africa, vol. 2, pp. 100–102, 1900.
[92] Ibis, 1900, p. 144.
[93] Kongl. Svenska Vet.-Akad. Handl., 1924, p. 99.
[94] Systema avium Æthiopicarum, pt. 2, p. 702, 1930.

This sunbird appears to be fairly common in Ethiopia and in southern Eritrea. It appears not to have been recorded before from as far south as southern Shoa, so the specimen from Bodessa constitutes a definite extension of range. It is of interest to find this bird coming so close to the range of *C. hunteri* (known from Turturo near Bodessa), and it would be highly interesting to see whether the two intergrade in southern Shoa.

Mearns noted this sunbird in small numbers practically every day on his journey from Aletta (March 13) to Bodessa (June 3).

CYANOMITRA OLIVACEA RAGAZZII (Salvadori)

Eleocerthia ragazzii Salvadori, Ann. Mus. Civ. Genova, vol. 26, p. 247, 1888: Ferkerié-ghem Forests, Shoa.

Specimens collected: 2 males, Escarpment, 7,390 feet, Kenya Colony, September 8–10, 1912.

The races of the olive sunbird have been studied quite exhaustively by Neumann, Bannerman, Gyldenstolpe, and others, and I find that the arrangement followed by Sclater[95] holds very well for all the material I have seen (67 specimens of 4 races).

The present race is the most greenish below of all the subspecies, and it is said to be the largest of the three forms in Kenya Colony. Van Someren[96] gives its wing length as from 51 to 71 mm. The present specimens measure 56 and 61 mm, respectively. I find the size differences between *ragazzii* and *neglecta* do not hold true.

This form occurs from Shoa and Djimma in southern Ethiopia to western Kenya Colony, Uganda, and the eastern Ituri district of the Belgian Congo. In Kenya Colony it occurs as far south as the Sotik area.

I have only one Ethiopian specimen for comparison—a male from Charada, in Kaffa. This example is paler, more grayish, less bright yellowish, below than the two Escarpment birds. I see no real difference between the Kaffa bird and examples of *neglecta*, but it must be *ragazzii* on geographic grounds. The Escarpment birds show the characters of *ragazzii* very well. They are both in fresh plumage.

Van Someren[97] writes that this bird is a forest species, and stays high up in tall trees. In Uganda the breeding season is in June and February.

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[95] System avium Æthiopicarum, pt. 2, pp. 705–706, 1930.

[96] Nov. Zool., vol. 29, p. 200, 1922.

[97] Ibis, 1916, p. 443.

ANTHREPTES COLLARIS UGANDAE van Someren

Anthreptes collaris ugandae VAN SOMEREN, Bull. Brit. Orn. Club, vol. 41, p. 113, 1921: Maraquet.

SPECIMENS COLLECTED: 1 female, Meru Forest, Kenya Colony, August 10, 1912.

Sclater[98] considers *garguensis* Mearns as probably the same as *ugandae*, but uses the latter name although the former has priority. However, with admittedly limited material of *ugandae*, and with the type and three other specimens of *garguensis*, available for study, I find it possible to recognize both forms. The differences are not great, but *garguensis* has the abdomen somewhat deeper yellow and *ugandae* has the sides and flanks a little more greenish.

Similarly I find that *teitensis* is valid, and not identical with *elachior*.

Bannerman's arguments[99] for the specific distinctness of the *collaris* and *hypodila* groups seem well founded, but I have no pertinent immature specimens and so follow Sclater, as in all cases where I can not decide for myself.

Van Someren[1] has outlined the characters and ranges of the eastern forms of this sunbird in a manner wholly in keeping with the material seen by me.

A. c. jubaensis van Someren[2] I have not seen. It is said to be nearest to *elachior* but clearer yellow below.

The single specimen collected is in fairly fresh plumage.

Bowen[3] collected a male at Meru on August 6 and found it to have slightly enlarged gonads. He noted the species as not common in the Meru area.

ANTHREPTES ORIENTALIS ORIENTALIS Hartlaub

Anthreptes orientalis HARTLAUB, Journ. für Orn., 1880, p. 213: Lado, Upper Nile.

SPECIMENS COLLECTED:

1 adult male, Dire Daoua, Ethiopia, July 7, 1910 (Ouellard coll.).
1 adult male, Ourso, Ethiopia, October 7, 1911 (Ouellard coll.).
1 adult male, Dire Daoua, Ethiopia, December 21, 1911 (von Zulow coll.).
1 adult male, near Gardula, Ethiopia, March 27, 1912.
2 adult males, 2 adult females, Gato River near Gardula, Ethiopia, April 2–May 14, 1912.
1 adult female, Sagon River, Ethiopia, May 19, 1912.
1 adult male, Lake Stefanie, Kenya Colony, no date.
1 immature male, Malata, Ethiopia, June 22, 1912.
1 immature male, Anole, Ethiopia, June 17, 1912.
1 adult male, Hor, Kenya Colony, June 28, 1912.
2 adult females, 25 miles southeast Lake Rudolf, Kenya Colony, July 12, 1912.

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[98] Systema avium Æthiopicarum, pt. 2, p. 708, 1930.

[99] Rev. Zool. Africaine, vol. 9, pp. 343–347, 1922.

[1] Nov. Zool., vol. 29, pp. 202–203, 1922.

[2] Journ. East Africa and Uganda Nat. Hist. Soc., no. 37, p. 195, 1931: Hallescheid, Juba ver.

[3] Proc. Acad. Nat. Sci. Philadelphia, vol. 83, p. 71, 1931.

3 immature males, Indunumara Mountains, Kenya Colony, July 16–17, 1912.
1 adult female, Endoto Mountains, Kenya Colony, July 20, 1912.
1 adult female, 24 miles south of Malele, Kenya Colony, July 29, 1912.
1 adult male, Bowlder Hill, Thika River, Kenya Colony, August 28, 1912.

Inasmuch as *A. orientalis* and *A. longuemarei haussarum* occur together in the Lado district of the Uganda-Sudan border and at Fatiko on the White Nile, they must be considered as distinct species.

I have seen no material from southern Somaliland, and so can not form a definite opinion as to the validity of *neumanni* Zedlitz.[4] This form is said to be smaller and to have the underparts always pure white, with no yellowish wash. Sclater[5] regards *neumanni* as a synonym of *orientalis*, but it seems from Zedlitz's and van Someren's notes to be a valid race.

In the Dodoma district of Tanganyika Territory a large form with a very long, stout bill, *barbouri*, is found. The typical race occurs from the Upper White Nile and Shoa south through Uganda and the greater part of Kenya Colony south to the Teita district and Ukambani.

In southern Somaliland and southern Gallaland, and adjacent parts of northeastern Kenya Colony *neumanni* is found. The birds of the Tana River and the Thika River seem to be intermediate between true *orientalis* and *neumanni*.

Gyldenstolpe[6] writes that Lönnberg's specimens from Chanlers Falls, Northern Guaso Nyiro, are *neumanni*, "which therefore extends from Somaliland and Southern Abyssinia to the Northern parts of Kenya Colony."

More abundant material may reveal that *orientalis* itself is a composite of racial forms, but I have not enough birds to decide. The fact remains that Shoan males are larger on the average than typical *orientalis* from the Uganda–Sudan border, and from central and southern Kenya Colony. This is shown by the measurements (adult males only included) in table 71.

All the specimens collected are in abraded plumage; the two females, collected southeast of Lake Rudolf on June 12, are in molt. The immature birds have the underparts washed with light sulphur-yellow, but not nearly so darkly or extensively as in corresponding examples of *A. l. haussarum.*

In southern Somaliland and southeastern Ethiopia, the breeding season is from April to June. Erlanger[7] found nests with eggs in April in Gurraland, and in June in Arussi-Gallaland.

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[4] Journ. für Orn., 1916, pp. 73, 75: Afgoi.
[5] Systema avium Æthiopicarum, pt. 2, 1930, p. 710.
[6] Kongl. Svenska Vet.-Akad. Handl., 1924, p. 106.
[7] Journ. für Orn., 1907, p. 54.

Besides the actual specimens collected, Mearns recorded this sunbird as follows: Gato River near Gardula, March 29–May 17, 30 seen; Anole, May 18, 2; Karsa Barecha, June 21, 4; Malata, June 22, 4; Hor, June 26–30, 10; dry river 18 miles south of Hor, July 1–2, 2.

TABLE 71.—*Measurements of 13 adult male specimens of* Anthreptes orientalis orientalis

Locality	Wing	Tail	Culmen	Tarsus
ETHIOPIA:	*Mm*	*Mm*	*Mm*	*Mm*
Ourso	70.0	50.0	15.0	19.0
Dire Daoua	67.5	50.0	15.0	17.0
Do	66.0	52.5	15.0	19.0
Near Gardula	66.0	48.0	14.0	18.5
Gato River	70.0	52.0	14.5	17.0
Do	68.0	49.0	14.0	17.0
KENYA COLONY:				
Lake Stefanie	67.5	48.0	16.0	17.0
Hor	70.0	49.0	15.0	18.0
Thika River	65.0	51.5	14.0	17.5
Teita district	64.0	51.0	----------	18.0
UGANDA: Logos	65.0	48.0	15.5	16.5
SUDAN:				
Gondokoro	63.0	44.0	15.0	17.0
Do	65.0	47.0	15.0	17.0

Family ZOSTEROPIDAE, White-eyes

ZOSTEROPS SENEGALENSIS FRICKI Mearns

Zosterops senegalensis fricki MEARNS, Smithsonian Misc. Coll., vol. 61, no. 20, p. 6, 1913: Bowlder Hill, Thika River, Kenya Colony.

SPECIMENS COLLECTED:

1 male, Endoto Mountains, Kenya Colony, July 21, 1912.
1 male, 1 female, Tana River at mouth of Thika River, Kenya Colony, August 23–25, 1912.
2 males, 1 female, Bowlder Hill, Thika River, Kenya Colony, August 28, 1912.

One of the males from Bowlder Hill (U.S.N.M. no. 245874) is the type of *fricki*.

This race is characterized by its small size and paler color, when compared with *flavilateralis*. It is found in the Ukamba and Fort Hall districts, from Simba to Fort Hall and Meru, and in the Endoto Mountains, considerably to the north of its main range. The specimen from the Endoto Mountains is very slightly paler below than the others, but it can hardly be said to be an intergrade between *fricki* and *jubaensis*.

Van Someren[8] has recorded *fricki* from as far north as Archers Post. The Endoto Mountains appear to be the northernmost locality from which the race is known.

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[8] Journ. East Africa and Uganda Nat. Hist. Soc., no. 35, p. 64 (140), 1930.

The dimensions of the present series are shown in table 72.

The female from the Tana River is in a molting condition, especially in the tail; the other specimens are in rather worn plumage.

In his original description of *fricki* Mearns compared it with "*Zosterops senegalensis stuhlmanni.*" His series of the latter are all *Z. s. flavilateralis*, all from the Taveta area.

TABLE 72.—*Measurements of six specimens of* Zosterops senegalensis fricki *from Kenya Colony*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Endoto Mountains	Male	54.0	37.0	10.0	16.0
Tana River	do	53.0	36.0	10.0	15.0
Bowlder Hill	do	52.0	34.0	10.0	15.0
Do	do	54.0	39.0	10.0	15.0
Do	Female	50.5	35.0	10.0	14.5
Tana River	do	51.0	34.0	10.0	14.0

ZOSTEROPS SENEGALENSIS JUBAENSIS Erlanger

Zosterops jubaensis ERLANGER, Orn. Monatsb., vol. 9, p. 182, 1901: Damasso, Lower Juba River.

SPECIMENS COLLECTED: 1 female, Bodessa, Ethiopia, May 20, 1912.

The single specimen obtained is in very worn plumage.

I have not sufficient material to attempt a study of the northeast African forms of the yellow white-eye. According to Sclater,[9] two races occur in Ethiopia—*aurifrons* in the northern part (south to Lake Tsana) and in Eritrea and Sennar and *jubaensis* in eastern and southern Ethiopia, west to the Omo Valley and Lake Stefanie, and also in Somaliland and Jubaland.

In Kenya Colony the racial problem is more complicated. I have not enough material (53 specimens seen) to be certain of all points, but it seems that Sclater is wrong in considering *fricki* a synonym of *flavilateralis*. *Z. massaica* van Someren is a synonym of *flavilateralis*, but it may possibly be that coastal birds are different. Van Someren described *massaica* from Sagala, Teita, and Tsavo, apparently under the impression that coastal birds were true *flavilateralis*, but inasmuch as the type of the latter came from Ndi in the Teita district, *massaica* must be relegated to the status of a synonym. Van Someren considered birds from Witu, Lamu, and Manda as being typical *flavilateralis*. A specimen from Lamu, in the collection of the Academy of Natural Sciences of Philadelphia, is not typical *flavilateralis* but is intermediate between *fricki* and *jubaensis*. Three birds from Mombasa, in the Carnegie Museum, are more greenish, less yellowish below than any others seen by me. It may be that the birds of the coastal belt of southern Kenya Colony and of northern Tanganyika Territory are separable on this basis, but more material is needed to make sure.

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[9] Systema avium Æthiopicarum, pt. 2, pp. 672–673, 1930.

Sclater,[10] following Hartert,[11] considers *Z. smithi* Neumann a synonym of *jubaensis*, although the latter author states that this is only a probability and that topotypical *jubaensis* are needed to be certain of this. Neumann[12] had two specimens from Sillul and two from the lower Omo River on which he based *smithi*. This form is said to be dull olive green-gray, not pure olive-green above. The present bird from Bodessa and one from the Omo river, now in the Academy of Natural Sciences at Philadelphia, bear out this character. I have no topotypical *jubaensis* available and therefore follow Sclater, although ampler series may show *smithi* to be valid. If this be shown, then the present bird would have to be referred to *smithi* and not *jubaensis*.

Subspecific differences are small at best in this species, but they are worthy of study for just that reason.

ZOSTEROPS VIRENS KIKUYUENSIS Sharpe

FIGURE 21

Zosterops kikuyuensis SHARPE, Ibis, 1891, p. 444: Kikuyu, Kenya Colony.

SPECIMENS COLLECTED: 2 males, 1 female, Escarpment, 7,390 feet, Kenya Colony, September 8–10, 1912.

The present specimens are not quite typical *kikuyuensis* but, while best referred to that form, are very slightly intermediate between it and *jacksoni*.

The African forms of the genus *Zosterops* are very difficult to deal with, as material is not available of a number of them, but it seems to me that Neumann's arrangement[13] is a better one than that followed by Sclater.[14] I have not sufficient series to attempt any revisions, but *garguensis* appears to be a valid form and not a synonym of *kaffensis* as Sclater suggests. I have seen the type and three other examples of *garguensis* and they are uniformly different from *kaffensis* in having the yellow on the forehead less extensive than in the latter, and also they are somewhat darker on the back than *kaffensis*. Van Someren[15] has also found *garguensis* to be a valid race and has extended its known range to Marsabit.

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[10] Ibid., p. 673.

[11] Nov. Zool., vol. 27, p. 432, 1920.

[12] Orn. Monatsb., 1902, p. 139.

[13] Orn. Monatsb., vol. 12, pp. 109–118, 1904.

[14] Systema avium Æthiopicarum, pt. 2, pp. 672–675, 1930.

[15] Journ. East Africa and Uganda Nat. Hist. Soc., no. 35, p. 64 (140), 1930.

In the regions traversed by the Frick expedition, the following races are found:

1. *Z. v. schoanus:* The Shoa and Godjam districts of Ethiopia.
2. *Z. v. kaffensis:* The Kaffa and Djimma districts of southwestern Ethiopia.

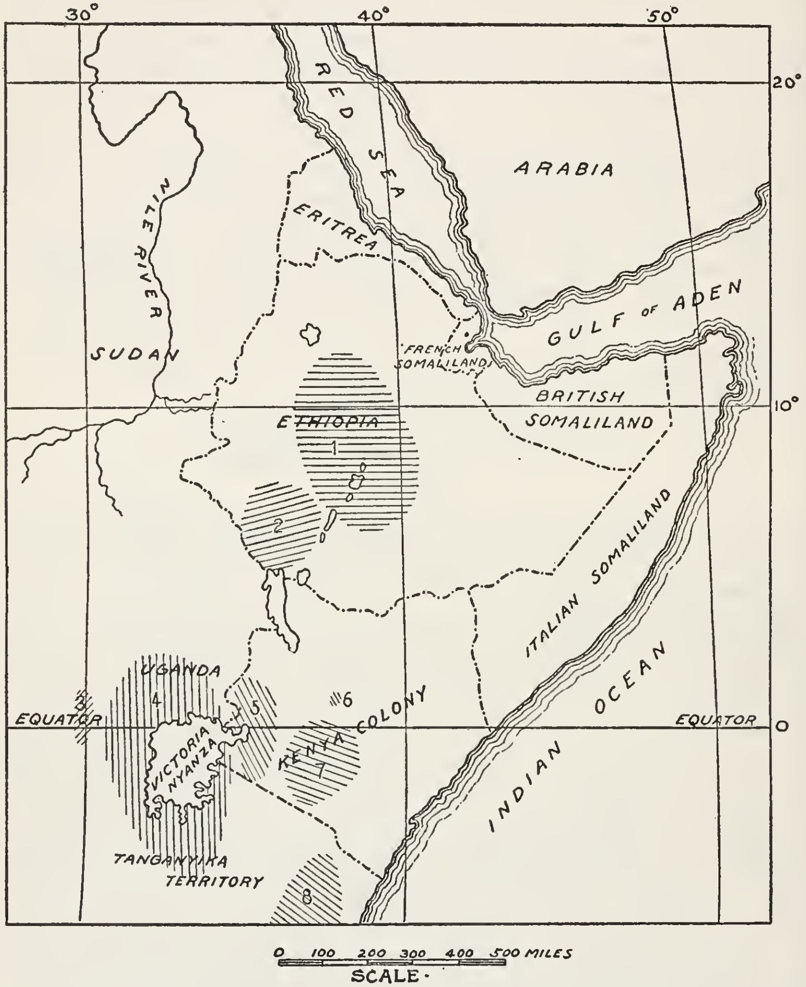
30°
40°
50°
20°
10°
0
RED SEA
ARABIA
NILE RIVER
ERITREA
GULF OF ADEN
SUDAN
FRENCH SOMALILAND
BRITISH SOMALILAND
ETHIOPIA
1
2
ITALIAN SOMALILAND
UGANDA
3
4
5
6
EQUATOR
KENYA COLONY
7
VICTORIA NYANZA
INDIAN OCEAN
EQUATOR
TANGANYIKA TERRITORY
8
0 100 200 300 400 500 MILES
SCALE

FIGURE 21.—Distribution of *Zosterops virens* in northeastern Africa.

1. *Z. v. schoanus.*
2. *Z. v. kaffensis.*
3. *Z. v. scotti.*
4. *Z. v. stuhlmanni.*
5. *Z. v. jacksoni.*
6. *Z. v. garguensis.*
7. *Z. v. kikuyuensis.*
8. *Z. v. eurycricotus.*

3. *Z. v. garguensis:* Mount Garguess (or Uraguess) north to Marsabit, Kenya Colony.
4. *Z. v. kikuyuensis:* The highlands of central Kenya Colony from Mount Kenya, the Aberdare Range, and Escarpment to Nairobi. *Z. v. somereni* Hartert is considered a synonym.

5. *Z. v. jacksoni:* The highlands of Kenya Colony west of the Rift Valley (Mount Elgon, Nandi, etc.).

These races may be identified by the following notes: The most northerly form, *schoanus*, is generally darker above and paler, less yellowish below, than any of the others. The other extreme, of brightest coloration, deepest and widest yellow frontal band, and widest white eye ring, is shown in *kikuyuensis.* The race *kaffensis* is somewhat lighter, more yellowish, above, and has a narrower white eye ring than *kikuyuensis*, and is the smallest of the five forms; wings, 56–58 mm; *jacksoni* is similar to *kikuyuensis* but has a somewhat narrower eye ring and a narrower and slightly paler yellow frontal band; *garguensis* is nearest to *jacksoni* but is darker, more grayish green, above.

Hartert has recently separated the birds of Mount Kenya as a racial form, *Z. v. somereni*,[16] which is said to be nearest to *kikuyuensis* but to have a larger bill, the forehead, throat, and abdomen brighter yellow, the breast with darker greenish zone, and the white eye ring still wider, especially above the eye. I have examined a long series from Mount Kenya, and I cannot see any constant differences between them and *kikuyuensis.* Therefore, I consider *somereni* to be identical with *kikuyuensis.*

With regard to the Uganda race, I consider *scotti* from Ruwenzori to be distinct from *stuhlmanni.*

I have seen one specimen from Kaimosi, which, by geography, might be van Someren's form *yalensis.* I am not at all certain as to the correct disposition of this name. It may be a species or it may be a group of intergrades between *jacksoni* and *kaffensis.* The difficulty with the latter supposition is that on Mount Elgon a larger form, with broader eye rings, *elgonensis* (perhaps a species?), occurs and breaks the geographical continuity of the blending of *jacksoni* through *yalensis* with *kaffensis.* I have seen no Elgon material, however.

The present specimens are in fairly fresh plumage. They have the following wing dimensions: Males, 59, 60; female, 60 mm.

Little seems to have been recorded of the breeding season, but birds with enlarged gonads were taken on Mount Kenya late in March by Lönnberg.[17] August birds collected by Bowen,[18] were not in breeding condition.

Mearns noted about 100 of these birds at Escarpment, September 11–12.

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[16] Nov. Zool., vol. 34, p. 207, 1928: Mount Kenya.

[17] Kongl. Svenska Vet.-Akad. Handl., 1911, p. 117.

[18] Proc. Acad. Nat. Sci. Philadelphia, vol. 82, p. 70, 1931,

ZOSTEROPS ABYSSINICUS ABYSSINICUS Guérin

Zosterops abyssinica GUÉRIN, Rev. Zool., 1843, p. 162: Abyssinia.

SPECIMENS COLLECTED: 1 unsexed, Gada Bourca, Ethiopia, December 26, 1911.

This race of the white-breasted white-eye occurs from Erkowit in the Sudan south through Eritrea to Somaliland and to the northern end of the Shoan lake region. In the Omo Valley of southwestern Ethiopia it is replaced by *omoensis*, which differs in having no isabelline on the sides and flanks and in having the yellow on the throat and under tail coverts somewhat darker. Other forms occur in Socotra and in southwestern Arabia.

The single specimen collected is in very worn plumage.

Zedlitz[19] has reviewed what is known of this species, and I have nothing to add to his comments. Erlanger[20] noted that a specimen from the Shoan Lake region was a little stronger green above than examples from Arussi–Gallaland and the Hawash Valley. The present example is so worn that it is impossible to say much about its original intensity of dorsal coloration.

The species is said to inhabit the open forests dotted with acacias and euphorbias. A male in breeding condition was shot on May 27 at Bakora, in the Danakil country.

ZOSTEROPS POLIOGASTER Heuglin

Zosterops poliogaster HEUGLIN, Ibis, 1861, p. 357, pl. 13: Highlands of Abyssinia.

SPECIMENS COLLECTED:

10 males, 3 females, Arussi Plateau, 9,000 feet, Ethiopia, February 20–21, 1912.
3 males, 1 female, Cofali, Ethiopia, March 2–3, 1912.
4 males, 2 females, Aletta, Sidamo, Ethiopia, March 7–11, 1912.

Since no north Ethiopian birds (typical *poliogaster*) have been available for study, I can not pass judgment on Neumann's form *erlangeri*, and so follow Sclater's arrangement.[21] If *erlangeri*, however, should be found to be valid, all the present specimens would have to be identified as of that race, since they uphold its diagnostic character of having the forehead and forepart of the crown yellow.

The present series are very uniform in their coloration. Their size variations are given in table 73. All the specimens are fully adult, and all are in fairly fresh plumage. None shows any sign of molt. Although some males are as small as the females, the latter do not attain to the same maximal dimensions as the former.

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[19] Journ. für Orn., 1911, pp. 56–57.
[20] Journ. für Orn., 1907, p. 51.
[21] Systema avium Æthiopicarum, pt. 2, p. 678, 1930.

TABLE 73.—*Measurements of 23 specimens of* Zosterops poliogaster *from Ethiopia*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
Arussi Plateau	Male	67.0	52.5	12.0	18.0
Do	do	65.0	48.0	12.5	18.0
Do	do	67.0	52.0	11.5	18.5
Do	do	65.5	51.0	12.5	19.0
Do	do	66.0	51.0	13.0	18.0
Do	do	64.5	49.5	12.0	18.0
Do	do	66.0	48.0	12.0	18.0
Do	do	67.0	51.5	12.0	18.0
Do	do	63.0	51.5	12.0	18.0
Do	do	66.0	54.0	12.5	19.0
Cofali	do	65.0	49.0	12.5	19.0
Do	do	64.0	49.0	12.0	18.5
Do	do	65.0	50.0	12.0	18.0
Aletta	do	63.0	49.0	11.5	18.5
Do	do	61.0	47.0	11.0	18.0
Do	do	63.5	49.0	12.5	18.0
Do	do	63.0	48.0	11.5	18.5
Arussi Plateau	Female	63.0	48.0	12.0	18.0
Do	do	63.5	49.0	12.5	19.0
Do	do	63.5	48.0	12.0	17.5
Cofali	do	60.0	48.0	11.5	19.0
Aletta	do	62.0	46.0	12.0	17.5
Do	do	60.0	44.5	12.0	18.0

Von Heuglin[22] found this bird to be a fairly common resident in the mountains of eastern and central Ethiopia, at altitudes of from 3,000 to 12,000 feet. He found it in the Telemt, Simien, and Begemeder areas. Blanford[23] met with it in Tigre; Elliott[24] found the species at Bohoigashan in Somaliland; Antinori and Ragazzi found it in Shoa. Lovat[25] reported it as a very common bird in the country east of Adis Abeba. Zedlitz[26] met with it in southern Eritrea. Neumann[27] found it only at great heights (8,900–10,200 feet); Erlanger[28] found it abundantly in the higher forested regions of Arussi-Gallaland and Shoa. He writes that the breeding season is from January until July. Females in laying condition were collected on January 18 in the Djamdjam region, and on July 4 in Arussi-Gallaland.

Mearns noted about 1,000 of these birds at Aletta, March 7–13, and 10 at Loco, March 13–15.

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[22] Ornithologie Nordost-Afrika's, etc., vol. 1, pp. 412–413, 1869.

[23] Observations on the geology and zoology of Abyssinia, p. 354, 1870.

[24] Field Columb. Mus. Publ. Orn. Ser., Publ. 17, vol. 1, no. 2, p. 41, 1897.

[25] Ibis, 1900, p. 145.

[26] Journ. für Orn., 1911, p. 56.

[27] Journ. für Orn., 1906, pp. 241–242.

[28] Journ. für Orn., 1907, pp. 50–51.

Family PLOCEIDAE, Weaverbirds

BUBALORNIS ALBIROSTRIS INTERMEDIUS (Cabanis)

Textor intermedius Cabanis, Journ. für Orn., 1868, p. 413: Kisuani, Usambara district, Tanganyika Territory.

Specimens collected:

2 adult males, Ourso, Ethiopia, September 19–October 3, 1911 (Ouellard coll.).
1 immature male, Dire Daoua, Ethiopia, October 5, 1910 (Ouellard).
2 adult males, 1 adult female, Sadi Malka, Ethiopia, December 21, 1911.
2 adult males, 4 immature males, 1 adult female, Gato River near Gardula, Ethiopia, April 6–11, 1912.
1 immature male, Anole, Ethiopia, June 17, 1912.
1 immature male, Yebo, Ethiopia, June 21, 1912.
1 adult female, Northern Guaso Nyiro River, Kenya Colony, August 3, 1912.
2 immature males, 1 female, 1 unsexed, Lekiundu River, Kenya Colony, August 4, 1912.

Soft parts: Adult male—bill red; feet olive. Adult female—bill olivaceous-black with base of mandible paler and tinged with red; feet olive. Immature male—bill varies from blackish, with some pale orange at the base of the mandible, to orange, with a little black basally and at the tips of both the maxilla and the mandible; feet bluish gray to olive, claws light brown.

Hartert[29] has reviewed the races of the buffalo weaver and recognizes *scioanus* Salvadori.[30] If this race be valid, the Ethiopian specimens listed above would have to be referred to it, but I can not find any difference between them and Kilimanjaro birds (*intermedius*) and therefore synonymize *scioanus* with *intermedius*. Sclater[31] has come to the same conclusion, although Neumann,[32] van Someren,[33] and others recognize *scioanus*. According to Hartert, *scioanus* has a whitish wash on the basis of the remiges, while Zedlitz[34] writes that the inner portions of these feathers are darkish, brownish gray in *scioanus* and pure white in *intermedius*, that the former occurs from eastern Shoa, Hawash, etc., to northern Somaliland, and that birds of southern Ethiopia, northern Kenya Colony, and southern Somaliland are *intermedius*. If this were so, then the Ourso, Dire Daoua, and Sadi Malka birds should be *scioanus* and the Gato River, Anole, Yebo, etc., specimens *intermedius*, but there is absolutely no difference between them *inter se*, or between them and practically topotypical *intermedius*.

The birds collected in June and August are in rather fresh plumage as are also a male from Sadi Malka, December 21, and the young birds taken in April at Gato River. The September, October, and December birds from Ourso, Dire Daoua, and Sadi Malka are in worn plumage. Signs of molt are shown by birds collected in October, April, and August. A character that may be of interest in the event that *scioanus* may be resurrected by some other investigator is the color of the outer margins of the primaries of immature birds. In Kenyan and extreme southern Shoan birds these margins are buffier than in Shoan specimens, which are more whitish in this regard.

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[29] Nov. Zool., vol. 14, pp. 485–486, 1907.
[30] Ann. Mus. Civ. Genova, 1884, p. 195: Daimbi, Shoa.
[31] Systema avium Æthiopicarum, pt. 2, 715, 1930.
[32] Journ. für Orn., 1916, p. 9.
[33] Nov. Zool., vol. 29, p. 133, 1922.
[34] Journ. für Orn., 1916, p. 9.

The molt into adult plumage appears to be very irregular. Thus, one immature male has the abdomen, sides, flanks, and under tail coverts black as in the adult plumage, but has the chin, throat, and upper breast still white, while another specimen has the chin, throat, and upper breast black, and the rest of the underparts still largely covered with the feathers of the immature plumage.

The adult males have the following dimensions: Wing, 119–127 (122); tail, 96–106 (99.9); culmen, 22–24.5 (23.5); tarsus, 30.5–33 (31.8 mm). Females—wing, 107–113 (108.6); tail, 83–90 (87); culmen, 20–23 (21.9); tarsus, 29–30.5 (29.7 mm).

Erlanger[35] found this bird nesting in March and April in the Arussi country. Zedlitz[36] writes that in extreme northern Ethiopia and in Eritrea the typical race breeds at the end of the rainy season. Brehm and Heuglin found the birds breeding from July to September in northern Ethiopia, Sennar, and Kordofan. In British Somaliland Lort Phillips found them building nests in March.

Mearns saw this peculiar bird in considerable numbers only along the Northern Guaso Nyiro and Lekiundu Rivers; elsewhere he saw only what he collected, or at least he failed to record them if there were others.

DINEMELLIA DINEMELLI DINEMELLI (Gray)

Textor dinemelli GRAY, Genera of birds, pt. 1, page corresponding to p. 350 in the 1849 edition (unnumbered in the original, subsequently suppressed edition), May, 1844: No locality; Shoa (Rüppell, Systematische Uebersicht, der Vögel Nordost-Afrika's, p. 72, 76, pl. 30, 1845, *ex* Horsfield MS.).

SPECIMENS COLLECTED:

3 males, 12 females, Dire Daoua, Ethiopia, November 27– December 15, 1911.
2 males, Sadi Malka, Ethiopia, January 31–February 2, 1912.
1 male, Hawash River, Ethiopia, February 10, 1912.
4 males, Tertale, Ethiopia, June 7–10, 1912.
1 male, 1 female, Saru, Ethiopia, June 19, 1912.
1 female, Yebo, Ethiopia, June 20, 1912.
2 females, Hor, Kenya Colony, June 30, 1912.
1 male, 1 female, 18 miles southwest of Hor, Kenya Colony, July 1–2, 1912.
1 female, Dussia, Kenya Colony, July 2, 1912.

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[35] Journ. für Orn., 1907, pp. 2–3.

[36] Journ. für Orn., 1911, pp. 14–15.

1 female, Le-se-dun, Kenya Colony, July 26, 1912.
2 males, Northern Guaso Nyiro River, Kenya Colony, August 2–3, 1912.
1 immature male, Lekiundu River, Kenya Colony, August 8, 1912.
1 male, 2 females, Tana River, Kenya Colony, August 16–17, 1912.

The name *Textor dinemelli* is credited by Sclater[37] to Rüppell, 1845, but it appeared in the original, 1844, edition of Gray's "Genera of Birds." While it is true that no description appears with the name at that point the colored plate of the 1849 edition was first issued with the original draft of the text in 1844, and therefore the name must date from Gray, 1844. The bird from which the plate was drawn was one obtained by Harris in Shoa and brought to Europe not long before 1844, as Rüppell speaks of it as "einem von Major Harris vor Kurzem aus Schoa nach England überbrachten Exemplare."

I have seen no material from southern Somaliland and so can not form an opinion as to the validity of *ruspolii* Salvadori. Sclater recognizes it, but Erlanger,[38] Zedlitz,[39] van Someren,[40] and other students of this group have all declared it to be identical with *dinemelli.*

In Tanganyika Territory a much larger race, *boehmi*, replaces *dinemelli.* The typical form occurs from Shoa and Somaliland west to the Mongalla district of the Anglo-Egyptian Sudan, south to northern and northeastern Uganda, and Kenya Colony to the Teita-Taveta district.

The white-headed buffalo weaver appears to be a common bird in Shoa and in the Galla countries, in Somaliland, and in Kenya Colony, going about in loose flocks of from 10 to 20 individuals. It is a denizen of the acacia savannahs, and by virtue of its striking plumage and noisy habits it is one of the first species to force itself on the attention of the observer. Consequently, its range is fairly well known, as it is one of the few birds whose absence is as readily determinable as its presence.

The species varies greatly in color, but this variation is not correlated with season, sex, or age. The upper back varies from pale buffy brown to fuscous (on the whole younger birds average lighter above and older ones darker, but this does not hold true invariably); the rump varies from flame scarlet to scarlet. Van Someren[41] records two albinistic birds with normal red rumps.

Of the present series, birds in fresh plumage are distributed among the following months: December, January, June, July, and August;

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[37] Systema avium Æthiopicarum, pt. 2, p. 716, 1930.

[38] Journ. für Orn., 1907, p. 3.

[39] Journ. für Orn., 1916, p. 10.

[40] Nov. Zool., vol. 29, p. 134, 1922.

[41] Journ. East Africa and Uganda Nat. Hist. Soc., no. 35, p. 55 (131), 1930.

worn plumage: November, December, February, and August; molting: November, December, February, June, July, and August.

The males have the following size variations: Wing, 113–130 (120.1); tail, 70–83 (77); culmen, 21–24 (22.8); tarsus, 29.5–32.5 (31.8 mm). Females: Wing, 107–122.5 (114.5); tail, 68.5–80 (72.5); culmen, 21–23 (22.3); tarsus, 28–33 (30.5 mm).

The birds of northern Uganda and extreme southern Sudan may prove to be separable on the basis of smaller size. A male from Logos, Bahr el Jebel, has a wing length of 116.5 mm, and two males from northwestern Uganda are said by van Someren [42] to have wings measuring 112 mm each. I know of no Uganda or Sudan records of birds with wings of more than 120 mm while Abyssinian male birds range as high as 130 mm and average 120 mm.

Mearns noted on the label of a male shot on June 10 that it was engaged in nest-building at the time. A mated pair was collected on August 16.

Hartert [43] records a nest with 4 eggs collected by Zaphiro at Bissidimo in September. Erlanger [44] found a nest with 2 eggs in northern Somaliland in March; another in Ennia Gallaland on May 24; another in the Danakil region on June 8.

Mearns noted from 20 to 500 of these birds every day on his journey from Aletta to Dussia, March 7–July 2, and again from the Endoto Mountains to the Lekiundu River, July 19–August 9. Smaller numbers (4–25) were seen daily along the Tana River, August 13–26, and the Thika River, August 26–28.

PLOCEPASSER MAHALI MELANORHYNCHUS Bonaparte

Plocepasser melanorhynchus Bonaparte, Conspectus generum avium, vol. 1, p. 444, 1850: Shoa, *ex* Rüppell, Systematische Uebersicht der Vögel Nordost-Afrika's, p. 78, 1845, nom. nud.

Specimens collected:

7 males, 5 females, Dire Daoua, Ethiopia, December 5–21, 1911.
1 female, Sadi Malka, Ethiopia, February 3, 1912.
2 males, Hawash River, Ethiopia, February 8–10, 1912.
1 male, 3 females, Gato River near Gardula, Ethiopia, April 7–May 9, 1912.
1 female, 1 unsexed, Sagon River, Ethiopia, June 3–4, 1912.
1 female, Turturo, Ethiopia, June 15, 1912.
1 female, Lake Stefanie, Kenya Colony, May 11, 1912.
1 female, Yebo, Ethiopia, June 21, 1912.
2 males, 3 females, Chaffa, Ethiopia, June 23, 1912.
1 male, 1 female, Endoto Mountains, Kenya Colony, July 20–23, 1912.
1 female, Er-re-re, Kenya Colony, July 25, 1912.
1 male, Le-se-dun, Kenya Colony, July 26, 1912.
1 female, Malele, Kenya Colony, July 27, 1912.

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[42] Ibis, 1916, p. 403.
[43] Nov. Zool., vol. 14, p. 487, 1907.
[44] Journ. für Orn., 1907, p. 3.

1 male, 18 miles south of Malele, Kenya Colony, July 28, 1912.
1 male, 25 miles north of Northern Guaso Nyiro River, Kenya Colony, July 30, 1912.
2 males, 2 females, Northern Guaso Nyiro River, Kenya Colony, August 1–3, 1912.
3 males, 4 females, Lekiundu River, Kenya Colony, August 4–8, 1912.
1 female, Tharaka district, Kenya Colony, August 14, 1912.
3 males, 1 female, Tana River, Kenya Colony, August 17–25, 1912.
1 male, west Thika River, Kenya Colony, August 28, 1912.
1 female, between Thika and Athi Rivers, Kenya Colony, August 29, 1912.

Soft parts: Iris dark red; bill all black; feet light brown, claws dark grayish brown.

The birds from Kenya Colony show, on the average, a very slight tendency to vary toward *propinquatus*, but they are not different enough from Abyssinian birds to warrant calling them anything but *melanorhynchus*.

Van Someren[45] writes that specimens from Naivasha and Thika are darker on the back and blacker on the crown than typical specimens of *melanorhynchus*. The present series shows no constant color variations correlated with geography. In fact, there is surprisingly little color variation, other than that due to fading and wear, in the series (75 specimens) examined in the present connection.

Of the birds listed above, molting specimens are in the minority but are scattered over December, May, and August. Fresh-plumaged birds were taken in December, February, June, and August; birds in worn feathering in December, April, May, June, July, and August.

The males have the following size variations: Wing, 93–104 (average, 98); tail, 57.5–67.5 (63.5); culmen, 15–18 (16.3); tarsus, 22–25 (23.8 mm). Females: Wing, 90–101.5 (95.6); tail, 56–64 (61.3); culmen, 15–17 (16.1); tarsus, 22–24.5 (23.2 mm).

Ethiopian males average 2 mm longer in the wing length than Kenyan examples, but the overlapping is very extensive. Ethiopian males have this dimension varying from 93.5 to 104.5 (average, 99.3) as against 92 to 102 (average, 97 mm) in Kenyan birds.

This race of the sparrow-weaver occurs from Nguruman, Tanganyika Territory, and southern Kenya Colony north to Shoa and the Hawash Basin (but not to Somaliland) and to northern Uganda and the Mongalla district of the Sudan. It is a common bird throughout its range and is noisy and, therefore, forces itself upon one's attention. Mearns referred to it in his notebooks as the "squeaky weaver." Zedlitz[46] has raised a question as to whether the birds of central and southern Kenya Colony are *melanorhynchus* or *erlangeri*, but all other recent writers seem agreed that they are the former.

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[45] Nov. Zool., vol. 29, p. 135, 1922.

[46] Journ. für. Orn., 1916, p. 11.

In Shoa the breeding season is in August according to Antinori; in extreme southern Ethiopia, Pease found them nesting both in the spring and in autumn. In Somaliland, the allied race *erlangeri* breeds in June and July.

In central Kenya Colony (Lekiundu River) Lönnberg[47] found fledged young in the beginning of February.

The abundance of this weaver is well illustrated by the entries given it in his diary by Mearns. On his journey from Aletta to Chaffa, March 15–June 24, he noted from 50 to 1,000 birds each day; similarly, on the trip from Endoto Mountains to the Guaso Mara River, July 19–August 9, from 200 to 1,000 were seen daily, and from the Tana River to the Athi River, August 12–29, from 50 to 500 birds were observed each day.

PLOCEPASSER DONALDSONI Sharpe

Ploceipasser donaldsoni SHARPE, Bull. Brit. Orn. Club, vol. 5, p. 14, 1895: "Eastern Africa", i. e., near Lasamis, between Lake Rudolf and the Northern Guaso Nyiro River, Kenya Colony.

SPECIMENS COLLECTED:

11 males, 5 females, Chaffa villages, Ethiopian-Kenyan border, June 23–25, 1912.
2 males, 18 miles southwest of Hor, Kenya Colony, July 2, 1912.
5 males, 4 females, Dussia, Kenya Colony, July 2–4, 1912.
1 male, east of Lake Rudolf, Kenya Colony, July 5, 1912.
1 male, 1 female, Kenya Colony, July 22–27, 1912.
1 male, Le-se-dun, Kenya Colony, July 26, 1912.
2 males, Lekiundu River, Kenya Colony, August 8, 1912.

Donaldson's sparrow-weaver occurs in northern Kenya Colony from the Shoan border to the Lekiundu River. It appears to be rather restricted in its range from west to east; it has not been recorded from west of Lake Rudolf, or from east of longitude 40° E. It is a bird of the acacia-steppe country and occurs together with *P. melanorhynchus.* Van Someren[48] considers it "apparently a rare bird." More recently, however,[49] he notes that it is common at Archers Post and Chanlers Falls, Northern Guaso Nyiro River. Lönnberg[50] obtained a series on the Lekiundu River, where it was not uncommon.

Van Someren writes that his birds are grayer, more mottled on the breast and buffier, less whitish on the cheeks, and are also larger than a cotype of *donaldsoni.* The present series, which covers the entire range of the species, shows no size or color differences between northern and southern birds. All the specimens (both sexes) have the cheeks buffy white, and the variation in the grayish or brownish tone of the upperparts is clearly not geographic but individual in nature. Inasmuch as this species is uncommon in collections, I give (table 74) the measurements of the present 33 specimens.

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[47] Kongl. Svenska Vet.-Akad. Handl., 1911, p. 100.

[48] Nov. Zool., vol. 29, p. 134, 1922.

[49] Journ. East Africa and Uganda Nat. Hist. Soc., no. 35, p. 56 (132), 1930.

[50] Kongl. Svenska Vet.-Akad. Handl., 1911, p. 100.

TABLE 74.—*Measurements of 33 specimens of* Plocepasser donaldsoni *from Kenya Colony*

Locality	Sex	Wing	Tail	Culmen	Tarsus
ETHIOPIAN—KENYAN BORDER:		*Mm*	*Mm*	*Mm*	*Mm*
Chaffa Villages	Male	94.0	55.0	19.5	23.0
Do	do	97.0	53.0	16.0	23.0
Do	do	91.0	51.0	19.5	24.5
Do	do	92.5	51.5	20.0	23.0
Do	do	92.0	52.5	20.0	23.0
Do	do	94.0	52.5	19.0	22.0
Do	do	87.0	53.0	20.0	23.5
Do	do	93.5	50.5	19.0	24.0
Do	do	89.0	51.0	19.0	23.5
Do	do	90.0	51.5	19.0	23.0
Do	do	93.0	55.0	21.0	24.0
KENYA COLONY:					
18 miles southwest of Hor	do	91.0	55.0	20.0	23.0
Do	do	94.0	54.0	21.0	24.0
Dussia	do	92.0	50.0	----------	22.0
Do	do	91.0	55.0	17.5	23.0
Do	do	85.0	49.0	19.0	25.0
Do	do	89.0	51.0	18.0	23.0
Do	do	93.0	54.0	17.5	22.5
East of Lake Rudolf	do	94.0	57.5	17.0	23.0
Malele	do	94.0	52.0	19.0	25.0
Le-se-dun	do	93.0	53.0	18.5	24.0
Lekiundu River	do	93.5	52.0	21.0	21.5
Do	do	94.0	55.0	21.0	22.0
ETHIOPIAN—KENYAN BORDER:					
Chaffa	Female	90.0	51.5	18.5	23.5
Do	do	89.5	51.0	19.0	22.5
Do	do	90.0	51.0	17.5	22.0
Do	do	91.0	50.0	19.5	24.0
Do	do	93.5	51.0	19.5	23.0
KENYA COLONY:					
Dussia	do	88.5	51.0	19.0	23.0
Do	do	88.5	48.5	18.0	23.0
Do	do	89.0	52.0	20.0	23.0
Do	do	83.0	50.0	16.0	22.0
Malele	do	86.5	52.5	20.0	24.0

A few of these specimens, taken in June and July, are in molt; most of the others are in fresh plumage; a few, June and July, are abraded.

On July 2, Mearns shot a mated pair. Lönnberg found the species in breeding condition early in July on the Lekiundu River.

One of the males collected at the Lekiundu River was "fighting a dead puff adder," according to Mearns's notes.

Mearns noted 1,500 of these birds at Chaffa villages, June 23–25; at Dussia, July 1–4, 1,000 were seen; east of Lake Rudolf, July 5–8, 30 birds; Malele, July 27, 200; 18–24 miles south of Malele, July 28–29, 200; Northern Guaso Nyiro River, July 31–August 3, 40 birds; Lekiundu River, August 4–8, 100 seen; Guaso Mara River, August 9, 50 birds seen.

PSEUDONIGRITA ARNAUDI KAPITENSIS Mearns

FIGURE 22

Pseudonigrita arnaudi kapitensis MEARNS, Smithsonian Misc. Coll., vol. 56, no. 14, p. 5, 1910: Juja Farms, Kapiti Plains, Kenya Colony.

SPECIMENS COLLECTED:

3 males, 2 females, east of Ithanga Hills, near Tana River, Kenya Colony, August 26, 1912.

1 male, 1 female, Athi River near Juja Farm, Kenya Colony, August 31, 1912.

1 female, Athi Station, Uganda Railway, Kenya Colony, September 1, 1912.

Sclater[51] does not recognize *kapitensis*, but I find it is certainly valid, differing from *arnaudi* in being larger. Van Someren[52] also finds *kapitensis* recognizable, but he considers *emini* Reichenow to be a synonym, in which case *emini* would have to be used for the present form. This, however, is erroneous, as *emini* is a much paler bird than *kapitensis*. Van Someren also notes that two specimens from the Magadi district are indistinguishable from typical *arnaudi* from Nimule. This would seem to be a corroboration of Sclater's decision in lumping *kapitensis* with *arnaudi*, but it is better to look upon these two specimens as unusually small *kapitensis*, as a good series of this form indicates its racial validity.

From the material examined in the present study, comprising some 24 specimens, it seems to me that there are four races of this weaver, instead of merely two, as Sclater writes. They are as follows:

1. *P. a. arnaudi:* The extreme southern Anglo-Egyptian Sudan (Bahr el Ghazal and Mongalla) east through northern Uganda to Turkanaland.
2. *P. a. kapitensis:* Elgeyu east to the Kapiti Plains and Ithanga Hills, south to the Magadi and Teita districts, Kenya Colony.
3. *P. a. dorsalis:* The Ikoma, Mwanza, and Tabora districts of Tanganyika Territory.
4. *P. a. emini:* Northeastern Tanganyika Territory from Ugogo south to Dodoma.

The first two forms are brown-backed with no gray dorsal area and may be told apart on a basis of size (wings, 60–63 mm in *arnaudi*, 64–70.5 mm in *kapitensis*); *dorsalis* has a grayish area on the upper back and is less brownish above than either *arnaudi* or

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[51] Systema avium Æthiopicarum, pt. 2, p. 719, 1930.

[52] Nov. Zool., vol. 29, 1922, p. 146.

kapitensis and has no black in the tail; *emini* is a very light pale colored version of *dorsalis*, with the usual black in the tail, and is smaller (wings, 58–60 mm). The type of *emini* is a young bird and consequently does not show the characters of the race. It is possible that *emini* and *kapitensis* are identical, in which case the Dodoma birds are of an undescribed race. However, the type locality of *emini* (Muhulala, Ugogo) is not so very far from Dodoma, although the latter area is more arid than the former and may well be inhabited by a distinct race. In the adult plumage *emini* is avellaneous on the nape, lower back, and rump, with a light neutral gray area

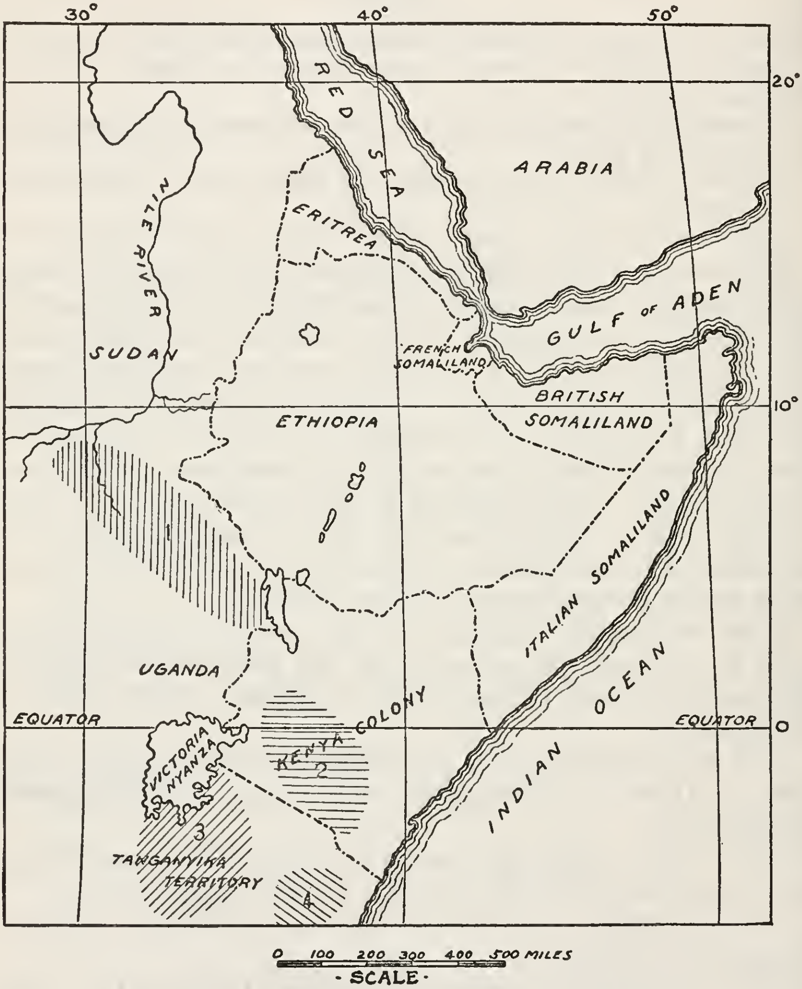
30°
40°
50°
20°
10°
0
RED SEA
ARABIA
NILE RIVER
ERITREA
SUDAN
FRENCH SOMALILAND
GULF OF ADEN
BRITISH SOMALILAND
ETHIOPIA
1
ITALIAN SOMALILAND
UGANDA
EQUATOR
EQUATOR
KENYA COLONY
2
OCEAN
INDIAN
VICTORIA NYANZA
3
TANGANYIKA TERRITORY
4
0 100 200 300 400 500 MILES
· SCALE ·

FIGURE 22.—Distribution of *Pseudonigrita arnaudi*.

1. *P. a. arnaudi*.
2. *P. a. kapitensis*.
3. *P. a. dorsalis*.
4. *P. a. emini*.

on the middle back, and a still paler grayish crown and forehead; the upper tail coverts and the underparts generally are pale avellaneous, slightly darker on the breast and throat.

The present specimens of *kapitensis* are all adults and are all in fresh plumage. Their dimensions are given in table 75.

Jackson found this bird breeding in May at Elgeyo; the typical race has been recorded as nesting in December and in August. *P. a. dorsalis* has been known to nest in June in the Ikoma district, Tanganyika Territory.

TABLE 75.—*Measurements of eight specimens of* Pseudonigrita arnaudi kapitensis *from Kenya Colony*

Locality	Sex	Wing	Tail	Culmen	Tarsus
		Mm	*Mm*	*Mm*	*Mm*
East of Ithanga Hills	Male	65.0	35.0	13.0	17.5
Do	do	70.5	38.0	14.0	18.5
Do	do	68.0	36.5	13.0	18.5
Athi River, Juja Farm	do	70.0	37.0	14.0	19.0
East of Ithanga Hills	Female	65.0	37.0	13.0	18.0
Do	do	67.5	36.5	13.5	19.0
Athi River, Juja Farm	do	68.0	36.5	12.0	18.0
Athi Station	do	67.5	37.0	13.0	19.0

PSEUDONIGRITA CABANISI (Fischer and Reichenow)

Nigrita cabanisi FISCHER and REICHENOW, Journ. für Orn., 1884, p. 54: Pare Mountains, near Kilimanjaro.

SPECIMENS COLLECTED:

2 adult males, 2 immature unsexed, Saru, Ethiopia, June 19, 1912.
1 immature male, 1 immature female, Wobok, Ethiopia, June 19, 1912.
2 adult males, 1 immature male, Malele, Kenya Colony, July 27, 1912.
3 adult males, 1 adult female, 1 adult unsexed, 3 immature females, 18 miles south of Malele, Kenya Colony, July 27–28, 1912.
1 adult male, 3 adult females, 1 immature female, river 24 miles south of Malele, Kenya Colony, July 29, 1912.
2 adult males, 3 immature females, Marsabit road, 25 miles north of Northern Guaso Nyiro River, Kenya Colony, July 30, 1912.
1 immature female, Northern Guaso Nyiro River, Kenya Colony, August 1, 1912.
7 adult males, 4 adult females, Lekiundu River, Kenya Colony, August 8, 1912.

Soft parts: Bill grayish white, feet flesh-color, claws brown.

Besides the above series, I have examined a number of other specimens, including the type of *enchorus* Oberholser,[53] and have come to the conclusion that there are no valid racial forms. Van Someren[54] casts doubt on the validity of *enchorus*. He finds that "birds in fresh, not worn, plumage agree absolutely with the co-type of *P. c. enchora* Oberh., and I doubt if this race is recognizable. I find the undersides of my birds white without any fleshy-pink tinge which is stated by Oberholser to be a character of *cabanisi*." My observations agree with van Someren's. I can find no constant differences in size or color that are at all correlated with geography.

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[53] Proc. U. S. Nat. Mus., vol. 27, p. 683, 1904: Dabulli, western Somaliland.

[54] Nov. Zool., vol. 29, p. 145, 1922.

The adult males have wings of 65–72 mm in length (average, 67.9 mm); the females, 66–68 mm (average, 67.1 mm).

The young birds show signs of molt, especially on the crown, where a few black feathers show through among the dull brown ones of the immature plumage.

Sclater [55] gives the range of this bird as from "the Ogaden-Somali country, through Kenya Colony to the Pare Mts." It is common, however, in Arussi Gallaland and in southern Shoa as well. Erlanger [56] found and collected a long series in Arussi Gallaland and the Garre-Lewin country farther east. Apparently, the present Shoan specimens constitute the most northwestern records for the species.

Erlanger found this bird nesting in February, March, and May in southern Somaliland. In Kenya Colony it appears to breed during the two rainy seasons, March to June, and September to November.

PASSER IAGOENSIS RUFOCINCTUS Finsch and Reichenow

Passer rufocinctus FINSCH and REICHENOW, Journ. für Orn., 1884, p. 55: Lake Naivasha.

SPECIMENS COLLECTED: 1 male, Athi Station, Uganda Railway, Kenya Colony, September 1, 1912.

I have not enough comparative material of other races of this sparrow to attempt a critical study of its geographical variations, and therefore I follow Sclater's arrangement.[57]

The present specimen agrees very closely with a long series from south-central Kenya Colony. It is in fresh plumage and has the following dimensions: Wing, 75; tail, 51; culmen, 12; tarsus, 20 mm.

This race of the rufous sparrow inhabits south-central Kenya Colony from Ukamba and Kikuyu to Laikipia and the Rift Valley. It does not seem to be known from northern Kenya Colony, although the race *shelleyi* is said to occur from the Upper White Nile and northern Uganda, east to Jifa Medir in Gallaland.

Van Someren [58] found this bird breeding in June and October, "in holes under the eaves of an outhouse, in holes in trees, and in deserted Weavers' nests."

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[55] Systema avium Æthiopicarum, pt. 2, p. 719, 1930.

[56] Journ. für Orn., 1907, pp. 18–20.

[57] Systema avium Æthiopicarum, pt. 2, p. 721, 1930.

[58] Ibis, 1916, p. 427.

PASSER CASTANOPTERUS FULGENS Friedmann

Passer castanopterus fulgens FRIEDMANN, Occ. Papers Boston Soc. Nat. Hist., vol. 5, p. 428, 1921: Indunumara Mountains, Kenya Colony.

SPECIMENS COLLECTED:

3 adult males, Chaffa, Ethiopia, June 24–25, 1912.

1 adult male, 1 immature male, 3 adult females, Hor, Kenya Colony, June 29, 1912.

4 adult males, 1 juvenal male, 1 juvenal female, Indunumara Mountains, Kenya Colony, July 15–16, 1912.

The Somali sparrow was first recorded from northern Kenya Colony by van Someren,[59] who listed 13 specimens from Marsabit, taken in July, 1923. Aside from these and a series from Karoli collected by Caldwell, now in the American Museum of Natural History, the present birds are the only other Kenyan records known to me, and, in point of collecting date, are the first ones taken in that country.

The species was first discovered in British Somaliland, but in 1903 Hammerton obtained a male at Bera, southern Somaliland. This record, published by Witherby,[60] constituted a considerable extension of range, but was doubted by Zedlitz,[61] who suggested that inasmuch as Hammerton obtained this bird at Upper Sheikh in northern Somaliland in 1904, the specimen labeled Bera probably came from Upper Sheikh also. However, in view of the fact that van Someren, Caldwell, and Mearns all obtained this species in northern Kenya Colony, Hammerton's record need no longer be looked upon with doubt and suspicion. The present Chaffa birds are the first records for Ethiopia.

The nominate race is known from British Somaliland. In northern Kenya Colony and extreme southern Shoa the present race replaces it. Which form occurs at Bera in southern Somaliland is an open question that can not be answered except by an examination of Hammerton's specimen. *P. c. fulgens* differs from typical *castanopterus* in being more yellowish on the cheeks and underparts; the males of *fulgens* with the top of the head and nape brighter cinnamon-rufous, and the upper back with a slightly more greenish tone.

P. c. fulgens is definitely known only from the following localities: Ethiopia—Malata, Chaffa; Kenya Colony—Hor, Indunumara Mountains, Koroli, and Marsabit.

As the juvenal plumage has never been described, the following notes are worthy of record: Sexes alike; forehead, crown, nape, and entire back and upper tail coverts uniform pale buffy brown, some of the interscapulars with dark brown centers; upper wing coverts, remiges, and rectrices dark earth brown edged with buffy brown; a pale buffy superciliary stripe over each eye; lores, cheeks, and auriculars pale buffy brown; underparts whitish lightly washed with pale buff on chin and throat and still more lightly washed with the same color on the middle of the abdomen; sides and flanks with a grayish buffy wash.

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[59] Journ. East Africa and Uganda Nat. Hist. Soc., no. 35, p. 60 (136), 1930.

[60] Ibis, 1905, p. 518.

[61] Journ. für Orn., 1916, p. 45.

The female, unknown at the time when Reichenow compiled his great work, has been described by Witherby and by van Someren. Both write that the female resembles the male above but lacks the chestnut color. This is not all, however; the upper back of the male has a yellowish grayish-green cast, while the female has a buffy-brown tone. The immature male (second pennaceous plumage) resembles the adult female.

The postjuvenal molt seems to be incomplete, as the brownish remiges and rectrices are retained, and are replaced by the deep fuscous ones of maturity only in the first prenuptial molt. The wings and tail molt after the body feathers; thus, the black throat gorget has already lost its grayish margins in a specimen in which the new remiges are not yet fully grown.

A male taken on July 16 is in very fresh plumage; others taken, June 24–July 15, are in molt. The dimensions of the adults collected by the expedition are shown in table 76.

TABLE 76.—*Measurements of 11 specimens of* Passer castanopterus fulgens

Locality	Sex	Wing	Tail	Culmen	Tarsus
ETHIOPIA:		*Mm*	*Mm*	*Mm*	*Mm*
Chaffa	Male	65.5	44.0	11.0	17.0
Do	do	68.0	47.0	11.0	15.5
Do	do	67.0	46.0	10.5	17.0
KENYA COLONY:					
Hor	do	66.5	48.0	11.5	17.0
Indunumara Mountains	do	67.0	45.0	10.5	16.5
Do	do	66.0	46.0	10.0	16.0
Do	do	67.5	47.0	10.0	16.5
Do	do	66.0	47.0	10.5	16.5
Hor	Female	67.0	47.0	11.5	16.0
Do	do	61.5	43.0	11.0	15.5
Do	do	66.0	45.5	10.5	16.5

A series of nine birds collected by Capt. Keith Caldwell at Karoli, on July 21–28, are all in very worn plumage and are all much stained below with reddish earth. They lack some of the yellow on the underparts, so characteristic of the Chaffa, Hor, and Indunumara birds.

This species (typical race) appears to be not at all uncommon in the coastal districts of northern Somaliland. Lort Phillips[62] found it numerous at Berbera, where it was nest-building in January. Hammerton[63] writes that it was a scarce bird "but now (1904) swarms along the lines of communication, following the ration convoys from post to post."

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[62] Ibis, 1898, pp. 397–398.

That this sparrow is very numerous in northern Kenya Colony is indicated by the following observational records in Mearns's notebooks: Malata, June 22, 10 birds seen; Chaffa, June 23–25, 220; Hor, June 26–30, 500; Dry River 18 miles southwest of Hor, July 1–2, 50 noted; Indunumara Mountains, July 14–18, 500 birds observed.

PASSER GRISEUS SWAINSONII (Rüppell)

Pyrgita swainsonii Rüppell, Neue Wirbelthiere, zu der Fauna von Abyssinien gehörig, etc., Vögel, p. 94, pl. 33, 1840: "Abyssinia, Sennar, Kordofan."

Specimens collected:

2 males, 3 females, Dire Daoua, Ethiopia, November 11–December 21, 1911.
2 females, Sadi Malka, Ethiopia, December 21, 1911.
1 male, 3 females, Adis Abeba, Ethiopia, December 30, 1911–Janury 2, 1912.
1 male, Botala, Sidamo, Ethiopia, March 5, 1912.
1 male, Konso Hills, Ethiopia, March 6, 1912.
1 male, 1 female, Aletta, Ethiopia, March 10–11, 1912.
3 males, 1 female, near Gardula, Ethiopia, March 27–28, 1912.
13 males, 2 females, Gato River near Gardula, Ethiopia, March 31–May 8, 1912.
1 male, Kormali, Ethiopia, May 18, 1912.

In northeastern Africa there are three forms of this sparrow and also the closely allied *P. gongonensis*, which must be kept as a species although it looks like nothing more than a large-billed race of *griseus*. The relationship of *gongonensis* and *griseus* recalls the case of *Emberiza schoeniclus and "Pyrrhulorhyncha" pyrrhuloides.*

The three races in northeastern Africa are as follows:

1. *P. g. eritreae:* Northern Uganda and the Upper White Nile Province of the Sudan through the drainage basins of the White and Blue Niles to Eritrea. This form, which I have not seen, is considered a synonym of *griseus* by Lynes[64] but I follow Sclater[65] in listing it as a valid race. The figure of it given by Zedlitz[66] certainly indicates a well-marked subspecies, characterized by its pure white chin, lower breast, abdomen, sides, flanks, and under tail coverts, and fairly large size.

2. *P. g. swainsonii:* The highlands of Somaliland and of Ethiopia from Asmara to southern Shoa, in the southern part of which it occurs together with *gongonensis*. This is a fairly large bird (as large as *eritreae*) but dusky grayish on the entire underparts—the darkest of all the forms here under consideration.

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[63] Witherby, Ibis, 1905, p. 518.
[64] Ibis, 1926, p. 383.
[65] Systema avium Æthiopicarum, pt. 2, p. 724, 1930.
[66] Journ. für Orn., 1911, pl. 1, fig. 1.

3. *P. g. neumanni:* Coastal Somaliland north to the Danikil area of Eritrea. This form is slightly smaller than either of the others, has the throat and breast grayish but paler than in *swainsonii*, the abdomen white as in *eritreae*, and the under tail coverts washed with buffy.

In Uganda and western Kenya Colony, *P. g. ugandae* occurs.

All the specimens collected are in rather worn plumage; one female, shot December 17 at Dire Daoua, is in molt; the others show no signs of ecdysis.

The adult males have wings varying from 80 to 91.5 mm in length; tail, 65–73; culmen, 12.5–14; tarsus, 19–21. Females: Wing, 81–88; tail, 63–69; culmen, 12.5–14; tarsus, 19–21 mm.

In Ethiopia the gray-headed sparrow is an abundant bird and takes the place of *P. domesticus* in a general way. It is a "house" sparrow in its habits, flourishing in and about native villages, nesting in holes in the walls of buildings and similar places. Antinori found it to be very common in Shoa; Lovat, Pease, and others have recorded its abundance in Gallaland. Erlanger[67] found the birds breeding at Harrar in the spring, March–May, and at Adis Abeba in autumn, September–October. There seems to be some seasonal wandering, perhaps not exactly comparable to migration, in this species. Erlanger found the birds abundant at Harrar in March, April, and May, but when he revisited the region in October not a sparrow was to be seen or heard, while in December they appeared again.

Mearns collected two nests with eggs at Gato River, on April 25. One contained 6 eggs, the other 4 eggs. The eggs show considerable variation in color, some being much browner, others much grayer in their markings. They average 19.5 by 15 mm in size.

Besides the birds collected, Mearns noted this sparrow as follows: Along the Hawash River in February, common everywhere in flocks but rather shy; Aletta, March 7–13, 100; Loco, March 13–15, 20 birds; Gidabo River, March 15–17, 10 seen; Abaya Lakes, March 17–26, 400; Gato River near Gardula, March 29–May 17, 1,000 seen; Anole, May 18, 50 birds.

PASSER GONGONENSIS (Oustalet)

Pseudostruthus gongonensis Oustalet, Le Naturaliste, 1890, p. 274: Gongoni, near Mombasa.

Specimens collected:

1 female, near Gardula, Ethiopia, March 28, 1912.
2 females, Gato River near Gardula, Ethiopia, April 24–May 4, 1912.
1 male, 1 female, Tertale, Ethiopia, June 11, 1912.
1 immature male, Mar Mora, Ethiopia, June 14, 1912.
1 male, 1 female, 1 immature male, Turturo, Ethiopia, June 15–16, 1912.

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[67] Journ. für Orn., 1907, pp. 25–26.

1 female, Yebo, Ethiopia, June 21, 1912.
1 female, Malata, Ethiopia, June 22, 1912.
2 males, 1 female, Chaffa, Ethiopia, June 23–25, 1912.
2 males, 1 female, 18 miles southwest of Hor, Kenya Colony, July 1–2, 1912.
1 immature male, 18 miles south of Malele, Kenya Colony, July 29, 1912.
1 male, 24 miles south of Malele, Kenya Colony, July 29, 1912.
1 male, 2 females, Northern Guaso Nyiro River, Kenya Colony, August 2–3, 1912.
2 males, 1 immature male, 2 females, Lekiundu River, Kenya Colony, August 4–8, 1912.
1 male, Guaso Mara River, Kanya Colony, August 9, 1912.
1 male, 1 female, Tana River, Kenya Colony, August 14, 1912.

Soft parts: Iris pale reddish brown; bill slate black, palest at base of mandible; feet pale grayish olive, claws black.

The thick-billed sparrow would certainly be called only a race of *P. griseus* were it not for the fact that the two occur together in southeastern Kenya Colony and in southwestern Ethiopia and adjacent areas.

Besides the above series, I have seen 10 other specimens from south-central Kenya Colony and I agree with Lynes[68] in finding no evidence of the intermediate race bridging the gap between *gongonensis* and *swainsonii* reported by van Someren[69] from the country between Ukamba and Lake Rudolf, said to be characterized by smaller size and smaller bill dimensions. Van Someren gives larger dimensions for his coastal birds (wings, males, 95–102; females, 91–96 mm) than I get for subcoastal and inland specimens, but a male from Changamwe is the smallest one I have seen (wing, 86 mm), so I can not see where to draw a line. Lynes states that western specimens average smaller than coastal ones, "but retain the same outstanding characteristics."

This bird occurs in the scrub and thornbush country from Mombasa north to southern Somaliland (Daua) west to Lake Baringo, southern Shoa, and the Omo region, southwestern Ethiopia.

Most of the specimens collected are in rather worn plumage. The dimensions of the males are as follows: Wing, 89–98; tail, 59.5–71; culmen, 14–15; tarsus, 20–22.5.

On August 2, Mearns collected a mated pair. Lönnberg[70] obtained birds with swollen gonads in January and February. "But on the * * * Itiolu river these sparrows had just fledged young the first days of February. Their propagation appears thus to be lively but somewhat irregular."

Mearns found this bird abundant from the Ethiopian–Kenyan boundary south to the Tana River.

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[68] Ibis, 1926, p. 386.
[69] Nov. Zool., vol. 29, p. 168, 1922.
[70] Kongl. Svenska Vet.-Akad. Handl., 1911, pp. 108–109.

SORELLA EMINIBEY Hartlaub

Sorella eminibey Hartlaub, Journ. für Orn., 1880, pp. 211, 235: Lado, Upper Nile.

Specimens collected:

1 adult male, Gato River near Gardula, Ethiopia, April 26, 1912.
1 adult male, Turturo, Ethiopia, June 16, 1912.
2 adult males, 3 immature males, 4 adult females, Wobok, Ethiopia, June 18, 1912.
2 adult males, southeast Lake Stefanie, Kenya Colony, May 12, 1912.
2 immature males, Chaffa, Ethiopia, June 24–25, 1912.
1 immature male, Indunumara Mountains, Kenya Colony, July 16, 1912.
1 adult male, 1 immature male, 5 adult females, 35–25 miles north of Northern Guaso Nyiro River, Kenya Colony, July 30, 1912.
1 adult female, Northern Guaso Nyiro River, Kenya Colony, August 3, 1912.

Van Someren[71] has separated the birds from the Northern Frontier Province of Kenya Colony as *S. e. guasso* on the basis of their paler coloration, lacking the deep tinge on the crown. If *guasso* be a valid race the present series would have to be referred to it and would constitute a northern extension of its range. However, I have compared these birds with practically topotypical *eminibey* and with others from Tanganyika Territory and can not find van Someren's diagnosis to hold at all. There is no difference in color between northwestern Ugandan and southern Sudanese birds and those from southern Shoa and northern Kenya Colony. Consequently, I do not recognize *guasso* as a valid race. Sclater[72] lists it but considers it "doubtfully distinct." On the other hand Hartert[73] considers it a recognizable form, and van Someren[74] obtained additional material and felt the characters of the race were upheld.

Until the present series was collected, there was only one record for this bird in Ethiopia—a specimen collected by Antinori at Daimbi in Shoa (Ada Galla area), published on by Salvadori.[75] In Kenya Colony the species has not been noted before from the area between Marsabit and the Ethiopian boundary.

The size variations of the adults collected are as follows: Males—wing, 59–64 (average, 62.3); tail, 38–43 (40.5); culmen, 9–10 (9.5); tarsus, 14.5–16 (15.1 mm). Females—wing, 58.5–62 (60.5); tail, 35–42 (37.4); culmen, 9–10 (9.5); tarsus, 14–16 (15.3 mm).

The specimens collected in April and June are mostly in abraded plumage; those taken from July 30 to August 3 are in molt.

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[71] Bull. Brit. Orn. Club, vol. 43, p. 38, 1922.

[72] Systema avium Æthiopicarum, pt. 2, p. 726, 1930.

[73] Nov. Zool., vol. 34, p. 198, 1928.

[74] Journ. East Africa and Uganda Nat. Hist. Soc., no. 35, p. 60 (136), 1930.

[75] Ann. Mus. Civ. Genova, 1884, p. 175.

This species ranges farther south than Sclater[76] indicates. He gives Nguruman, Tanganyika Territory, as the southern limit, but the bird is known from as far south as Dodoma in the central part of that country.

In the Ikoma district of Tanganyika Territory, the nesting season is in July, as Bowen[77] found a nest with one egg and one nesting there on July 9. In Darfur, Lynes[78] found a number of nests with eggs and young in October.

GYMNORIS PYRGITA PYRGITA (Heuglin)

Xanthodina pyrgita Heuglin, Journ. für Orn., 1862, p. 30: Bogos Mountains; Keren.[79]

Specimens collected:

2 males, 1 female, Dire Daoua, Ethiopia, December 17–21, 1911.
1 male, 1 female, Sadi Malka, Ethiopia, January 3, 1912.
1 male, Hawash River, Ethiopia, February 6, 1912.

The rock sparrow of northeastern Africa has been subdivided into five races, all of which appear to be valid. In the actual areas traversed by the Frick expedition only two occur—the typical form and *massaica*. In southern Somaliland a pale, small race (*reichenowi*) flourishes; a similarly pale but larger form (*pallida*) replaces it in the Sudan, while a large dark-backed form (*kakamariae*) is found in the Karamoja country of northeastern Uganda.

The two races of immediate concern in this report may be easily identified by their dorsal coloration—*pyrgita* being lighter and grayer, *massaica* darker and browner. The supposed size differences, especially of the bill, do not hold. The ranges of the two are as follows:

1. *G. p. pyrgita:* Eritrea to British Somaliland, south through most of Ethiopia to southern Gallaland and to central Shoa (about the region of Lake Zwai). In southeastern Gallaland it probably intergrades with *reichenowi;* where and if it merges with *massaica* I do not know, but birds of extreme southern Shoa (Gardula, Bodessa, etc.) are dark, brown-backed birds, agreeing exactly with typical *massaica.*

2. *G. p. massaica:* Southern Shoa, south through the interior of Kenya Colony (reaching the coast in the southern part of that country) to the northern part of Tanganyika Territory. The most southern localities known to me are the Pare Mountains, Pangani River, and Arusha, in northeastern Tanganyika Territory, and Serronea River, Ioma district, in the western portion of the country.

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[76] Systema avium Æthiopicarum, pt. 2, p. 726, 1930.
[77] Proc. Acad. Nat. Sci. Philadelphia, vol. 83, pp. 72–73, 1931.
[78] Ibis, 1924, p. 686.
[79] See Zedlitz, Journ. für Orn., 1916, p. 42.

Previously this race was not known from north of Marsabit in northern Kenya Colony. Sclater[80] merely gives "Kenya Colony, south to * * * northern * * * Tanganyika Territory." Lönnberg[81] obtained it near the Northern Guaso Nyiro River, and Zedlitz[82] doubted if this record could refer to *massaica*. Then van Someren[83] recorded *massaica* from Serenli, Mandaira, El Wak, and Marsabit, as well as from near the Northern Guaso Nyiro River. The examples of *massaica* collected by the Frick expedition extend the known range to southern Shoa.

The six specimens of *pyrgita* collected are in somewhat worn plumage. Their dimensions are as follows: Males—wing, 84.5, 85.5, 87, 91; tail, 58.5, 63, 65, 65; culmen, 12, 12.5, 12.5, 13; tarsus, 18, 19, 19, 20 mm. Females—wing, 79, 85; tail, 56, 63, culmen, 13, 13.5; tarsus, 18, 18 mm.

This species appears to be not uncommon but is nowhere abundant. I have not been able to find out anything about its breeding season; the southern race *massaica* has been found nesting in June.

GYMNORIS PYRGITA MASSAICA Neumann

Gymnoris pyrgita massaica Neumann, Bull. Brit. Orn. Club, vol. 21, p. 70, 1908: Kikuyu, Kenya Colony.

Specimens collected:

- 2 males, 2 females, Gato River near Gardula, Ethiopia, April 18–May 17, 1912.
- 1 male, Sagon River, Ethiopia, May 19, 1912.
- 3 males, Bodessa, Ethiopia, May 20–24, 1912.
- 1 male, Mar Mora, Ethiopia, June 14, 1912.
- 1 female, Endoto Mountains, Kenya Colony, July 20, 1912.
- 1 female, 1 immature male, Le-se-dun, Kenya Colony, July 26, 1912.
- 1 male, Tharaka district, Kenya Colony, August 14, 1912.
- 2 males, Tana River, Kenya Colony, August 16–19, 1912.

As already mentioned under the typical form, the present Ethiopian specimens are the first ones known from that country and extend the known range of the race northward by about 200 miles.

All the specimens taken in May are in very worn plumage; the bird collected on June 14 is in molt; the July and August birds are in fairly fresh feathering. The immature bird lacks the yellow on the throat and has some obscure darkish spots on the back. The size variations of the adults are as follows: Males—wing, 81–89 (average, 86.2); tail, 56.5–64 (60.4); culmen, 12–14 (13.2); tarsus, 18–20 (18.8 mm). Females—wing, 79, 85; tail, 56, 63; culmen, 13, 13.5; tarsus, 18, 18 mm.

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[80] Systema avium Æthiopicarum, pt. 2, p. 727, 1930.

[81] Kongl. Svenska Vet.-Akad. Handl., 1911, p. 109.

[82] Journ. für Orn., 1916, p. 44.

[83] Journ. East Africa and Uganda Nat. Hist. Soc., no. 35, p. 60 (136), 1930.

Bowen[84] writes that in the Ikoma district, Tanganyika Territory, the breeding season ends about the middle of June.

SPOROPIPES FRONTALIS CINERASCENS Madarász

Figure 23

Sporopipes cinerascens Madarász, Ann. Mus. Hungar. (Budapest), vol. 13, p. 395, 1915: Ruvana Steppes, Mwanza district, Tanganyika Territory.

Specimens collected:

1 male, Endoto Mountains, Kenya Colony, July 20, 1912.
1 male, Tharaka district, Kenya Colony, August 13, 1912.

I have gone over the literature and a small but geographically representative series of specimens of this weaver from Ethiopia, Sudan, Kenya Colony, and Tanganyika Territory, and I have come to somewhat different conclusions from those reached by Sclater.[85] In eastern Africa I recognize the following races:

1. *S. f. frontalis:* The valley of the Nile in the Sudan, south to the Upper Nile Province, west through Darfur across the Sudanese savannah belt to Senegal.

2. *S. f. abyssinicus:* Bogosland and northeastern Ethiopia; southern limits uncertain, perhaps getting to southern Somaliland where Revoil obtained a specimen which has never been identified subspecifically.

3. *S. f. cinerascens:* The Mongalla Province of the Sudan, south through Uganda and the interior of Kenya Colony to the Teita area, and to the Ikoma, Mwanza, and Uhele districts of Tanganyika Territory.

4. *S. f. emini:* The drier areas from Ugogo to Dodoma, Tanganyika Territory. This name is not mentioned by Sclater, who appears to consider all Tanganyikan birds *cinerascens.* If this were so, the name *emini* would have to be used for them as it has 18 years' priority over *cinerascens*, which in turn has priority over *loitensis* van Someren.

Zedlitz[86] has argued against the recognition of local forms in eastern Africa, stating that almost no other species of the family alters its appearance so greatly by abrasion and that therefore *abyssinicus* (and *emini*) must be considered untenable. I have therefore been careful to compare birds in similar degrees of plumage freshness or abrasion, and I find that four forms listed above to hold true. Of these *abyssinicus* is the palest on the back and the whitest below; *emini* is similarly white below but has the occiput and nape paler cinnamon-tawny and the back darker; *cinerascens* has the breast and flanks washed with grayish brown and has the occiput and nape as dark as in *abyssinicus* and the back as in *cinerascens;* the nominate form is like *abyssinicus* but somewhat darker above.

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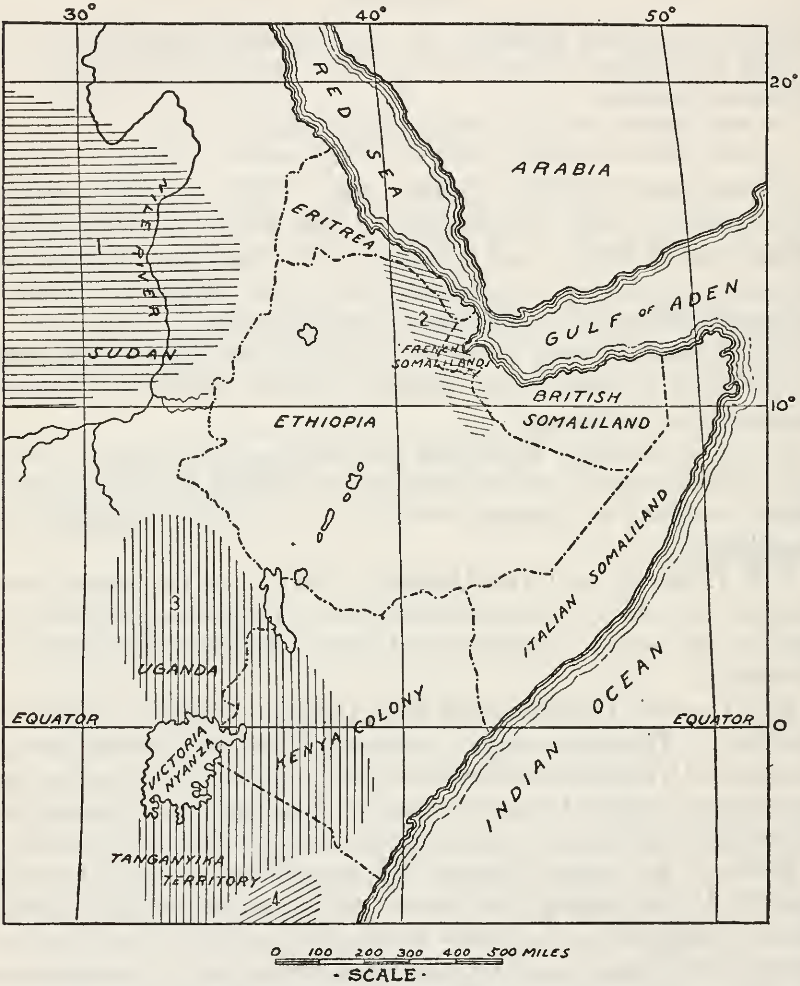
[84] Proc. Acad. Nat. Sci. Philadelphia, vol. 83, p. 73, 1931.
[85] Systema avium Æthiopicarum, pt. 2, p. 729, 1930.
[86] Journ. für Orn., 1911, p. 599.

The present form appears to have been taken but a few times in northern Kenya Colony. Berger[87] procured one specimen at Lake Baringo; Mearns's specimen from the Endoto Mountains is another record; while the bird has been taken in Turkanaland (Moroto, etc.) by van Someren and others.


30°
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RED SEA
ARABIA
GULF OF ADEN
ERITREA
FRENCH SOMALILAND
BRITISH SOMALILAND
ETHIOPIA
NILE RIVER
SUDAN
ITALIAN SOMALILAND
UGANDA
KENYA COLONY
VICTORIA NYANZA
TANGANYIKA TERRITORY
INDIAN OCEAN
EQUATOR
EQUATOR
1
2
3
4
0 100 200 300 400 500 MILES
· SCALE ·

FIGURE 23.—Distribution of *Sporopipes frontalis* in northeastern Africa.

1. *S. f. frontalis.*
2. *S. f. abyssinicus.*
3. *S. f. cinerascens.*
4. *S. f. emini.*

The two specimens obtained by the Frick expedition were in molt when shot.

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[87] Journ. für Orn., 1911, p. 518.

The breeding season in Kenya Colony (Elgeyu district) is in July, and (Loita Plains area) in January. The northern form, *abyssinicus*, is said to nest during the summer rains in Eritrea.

Besides the two specimens collected, Mearns noted this species as follows: Endoto Mountains, July 19–24, 20 birds seen; river 24 miles south of Malele, July 29, 2 noted; Northern Guaso Nyiro River, July 31–August 3, 20 seen; Tharaka district, August 13, 50 birds observed.

PLOCEUS REICHENOWI REICHENOWI (Fischer)

Sycobrotus reichenowi FISCHER, Journ. für Orn., 1884, p. 180: Great Arusha, Tanganyika Territory.

SPECIMENS COLLECTED: 1 male, Escarpment, Kenya Colony, September 7, 1912.

Reichenow's weaver occurs in Kenya Colony from Mount Elgon and Mount Kenya to Mount Kilimanjaro and the Usambara Range in northeastern Tanganyika Territory. It breaks up into two races; the typical one occurs from Tanganyika Territory to the eastern escarpment of the Rift Valley, and a form with no lateral projection of yellow behind the eyes in the males, *nigritemporalis* Granvik, replaces it on Mount Elgon.

This bird is common throughout its range. Unlike many species of *Ploceus*, the present form goes about in pairs, not in flocks, and does not nest in colonies. Van Someren[85] writes that they "do not nest in colonies, but in single pairs—two pairs at the very most might occupy one tree. It is a fact that there are usually many nests on the one tree, but only one will be occupied. The other nests are either old ones or spurious nests built by the male to while away the time while his mate is sitting." He found the birds breeding from March to July, and from November to January. Young were taken in May, June, and November.

PLOCEUS FRICKI (Mearns)

PLATE 1

Othyphantes fricki MEARNS, Smithsonian Misc. Coll., vol. 61, no. 14, p. 1, 1913: Aletta, southern Abyssinia.

SPECIMENS COLLECTED:

1 adult male, Malke, Sidamo, Ethiopia, March 3, 1912.
2 adult males, 2 adult females, 2 juvenal females, Aletta, Sidamo, Ethiopia, March 9–11, 1912.
1 adult male, Loku, Sidamo, Ethiopia, March 13, 1912.
1 adult female, Gidabo River, Sidamo, Ethiopia, March 15, 1912.

Soft parts: Iris yellow; bill black; feet and claws pale brown.

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[85] Ibis, 1916, p. 404.

Frick's weaver is hardly more than a race of *P. reichenowi*, as has been suggested by van Someren [89] who finds intermediates between the two in the Elgon area.

Mearns [90] has suggested that the few examples of *Ploceus reichenowi* recorded from southern Ethiopia may be males of *O. fricki* and that the two females from Sidamo and Djamdjam recorded as *O. stuhlmanni* by Neumann may be females of *O. fricki.* This seems quite likely; van Someren examined Neumann's birds and found that Mearns was correct in his assumption.

The relationships of *fricki*, *reichenowi*, *stuhlmanni*, and *emini* are still poorly understood. It is of great interest to find that *fricki* has one plumage like that of the corresponding sex (male) of *reichenowi*, and the other like that (female) of *stuhlmanni.*

This bird is known only from the Sidamo and Djamdjam districts of Ethiopia.

Inasmuch as little has been written about Frick's weaver, and as the original description may not be readily accessible to some investigators, I append Mearns's notes on the plumages of this bird:

> *Description of the adult male in breeding plumage.*—Forehead and most of crown apricot yellow; a band round the back of the ear-coverts, sides of upper neck, cheeks, and entire under parts empire yellow; auricular patch, back of head and neck, and mantle brownish black, the latter with the unworn feathers more or less edged with olive-yellowish-green; lower back, rump, upper tail-coverts, and rectrices warbler green; wings brownish black with pyrite yellow edges to the feathers, these edges being confined to the ends of the lesser and median coverts, the outer edges of the greater coverts and quills; iris pale yellow; bill black; feet and claws pale brown. In unworn plumage the yellow extends over the entire head and nape, but, posteriorly, the yellow feather-tips quickly disappear with wear.
>
> *Description of the adult female in breeding plumage.*—Top and sides of head brownish black; back, rump, and upper tail-coverts yellowish olive-green, the mantle, only, with broad black shaft-streaks; wings as in the male; entire under parts empire yellow.
>
> *Description of young in first plumage* (females, still attended by parents).—Top of head, back, rump, and upper tail-coverts warbler green, washed with brownish-grayish on the mantle, which is also shaft-streaked with brown; wings brown, with buffy-white outer edges to the secondaries, and pyrite yellow edges to the coverts and outer edge of primaries; auricular patch duskier than crown; under parts pinard yellow anteriorly, becoming pale drab-gray on lower abdomen and crissum.
>
> *Measurements of type* (adult male).—Length of skin, 150; wing, 80; tail, 62; culmen (chord), 18.2; tarsus, 24.
>
> *Average measurements of four adult males.*—Wing, 80.25; tail, 60.5; culmen (chord), 18.5; tarsus, 23.5.
>
> *Average measurements of three adult female topotypes.*—Wing, 78; tail, 59; culmen (chord), 17.33; tarsus. 22.2 [mm].

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[89] Nov. Zool., vol. 29, p. 137, 1922.

[90] Smithsonian Misc. Coll., vol. 61, no. 14, p. 2, 1913.

The abundance of this bird in its peculiarly limited range is attested by the fact that Mearns observed from 20 to 200 individuals every day on his journey from Aletta to Gato River, March 7–29.

PLOCEUS BAGLAFECHT BAGLAFECHT (Daudin)

Loxia baglafecht DAUDIN, *in* Buffon, Histoire naturelle (Didot's ed.), Quadrupeds, vol. 14, p. 245, 1799 (actually 1802): Abyssinia.

SPECIMENS COLLECTED:

3 males, 2 females, Adis Abeba, Ethiopia, December 31, 1911–January 7, 1912.

1 female, Ankober, Ethiopia, January 22, 1912.

Sclater[91] credits the name *baglafecht* to Vieillot,[92] but Daudin used the same name for the same bird 17 years earlier, and so it must be credited to him.

All the specimens obtained are in the nonbreeding, or "winter", plumage. They are all very much alike, and all show the commencement of the prenuptial molt, a touch of new yellow feathers on the chin, and a small area of olive-yellow on the forehead in some cases extending as far back as the crown. One female (January 3) has several yellow feathers on the abdomen.

The typical race of the baglafecht weaver is found in the highlands of Ethiopia from 5,000 feet up to about 12,000 feet. It occurs in southern Eritrea (Bogosland) as well.

In the northeastern Belgian Congo a race *eremobius* replaces it, and in the Cameroonian highlands another form, *neumanni*, is found.

According to Sclater,[93] Shelley's name *lovati*[94] and Madarász's form *edmundi*[95] are synonyms of *baglafecht*.

The dimensions of the present specimens are as follows: Males—wing, 80–85; tail, 61–63; culmen, 17.5–19; tarsus, 23–25 mm. Females—wing, 77–80; tail, 53–62; culmen, 17.5–18; tarsus, 23–24 mm.

Heuglin found this bird to be very numerous on the Eritrean-Ethiopian border and in Wollo-Gallaland. Blanford[96] found the species at 10,000 feet and noted that birds taken at Senafe at the end of May were in breeding dress.

In Shoa, Antinori noted that the winter plumage was still being worn in March but that birds began to molt in May and June, July and August birds being in breeding plumage.

Erlanger[97] found a nest and two fresh eggs as late as October 4 at Adis Abeba, but he noted that most of the birds had young in

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[91] Systema avium Æthiopicarum, pt. 2, p. 733, 1930.

[92] Nouveau dictionnaire d'histoire naturelle, vol. 34, p. 127, 1819.

[93] Systema avium Æthiopicarum, pt. 2, p. 733, 1930.

[94] The birds of Africa, vol. 4, p. 457, 1905: Lekamte, southern Abyssinia.

[95] Orn. Monatsb., vol. 22, p. 161, 1914: Adis Abeba.

[96] Observations on the geology and zoology of Abyssinia, p. 403, 1870.

[97] Journ. für Orn., 1907, p. 6.

September. Neumann[98] found a nest at Muger in Shoa on October 9, so it would seem as if the season is more prolonged than Erlanger believed. Zedlitz[99] noted that in extreme northern Ethiopia the breeding season was in the summer; his notes on the date of assumption of nuptial plumage agree with Blanford's observations.

PLOCEUS EMINI EMINI (Hartlaub)

Sycobrotus emini HARTLAUB, Orn. Centralbl., 1882, p. 92: Agaru, east of Nimule (Journ. für Orn., 1882, p. 322).

SPECIMENS COLLECTED:

1 male, Harrar, Ethiopia, July 26, 1909 (Zaphiro coll.)
2 males, Ourso, Ethiopia, October 13–November 2, 1911 (Quellard collection.)
2 males, 3 females, Arussi Plateau, Ethiopia, February 17–23, 1912.

The Arussi birds are in molt, changing from the winter to the breeding plumage; the Harrar bird is in full nuptial feathering with the rump entirely brownish gray, no yellow on the posterior underparts, mantle all black; the October bird from Ourso is similar except that there are a few brownish feathers mixed with the black of the mantle; the November Ourso specimen is still in breeding plumage, but there are a few brownish feathers among the black of the lower mantle; and there are several new olive-yellow feathers in the brown of the rump, posterior underparts entirely uniform pale smoky brown. Two of the males from Arussi Plateau are just beginning to change to the breeding plumage. One (U.S.N.M. no. 247067) collected on February 22, has several short yellow feathers scattered over the crown and has yellow pinfeathers bordering the base of the bill. The chin is yellow, and the breast and neck are sprinkled with new yellow feathers. The sides of the head are black but the feathers are still largely encased in their sheaths. Another (U.S.N.M. no. 247069) collected February 23, has acquired the complete yellow on the forehead and crown, behind which the black of the breeding plumage appears as a band across the occiput. In the mantle, among the brown feathers of the winter plumage, are several new olive-green ones with black shaft streaks. The sides of the head are jet black. From the chin to the breast is solid yellow, with scattered yellow feathers on the lower chest and upper abdomen.

So much for the males. Three females from the high Arrusi Plateau, February 17–22, show a corresponding extent of yellow on the underparts and have acquired more or less of the black breeding plumage on the top and sides of the head. Two have some scattered olive-green feathers, with black shaft streaks, on the mantle; and one is slightly greenish on the rump.

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[98] Journ. für Orn., 1905, pp. 337–338.

[99] Journ. für Orn., 1911, p. 16.

The dimensions of the present specimens are as follows: Males—wing, 79–86; tail, 60–65; culmen, 18–19; tarsus, 24–25 mm. Females—wing, 79–82; tail, 57–60; culmen, 18–19; tarsus, 24–24.5 mm.

This form of Emin's weaver occurs from eastern and central Ethiopia west to northwestern Uganda. In central and southern Uganda, and adjacent portions of the Ituri district, Belgian Congo, another form, *budongoensis* van Someren, replaces it. In this race the upper back of the male never becomes black in the breeding plumage as in typical *emini* but remains olive-grayish-green striped with fuscous.

Erlanger[1] found nests with eggs in April and May at Harrar and Cialanco. Zaphiro obtained a nest with eggs at Harrar on July 10. Mearns noted this bird as living "in open plains with a few junipers in which it nests."

PLOCEUS LUTEOLUS LUTEOLUS (Lichtenstein)

FIGURE 24

Fringilla luteola LICHTENSTEIN, Verzeichniss der Doubletten, etc., p. 23, 1823: Senegal.

SPECIMENS COLLECTED:

8 males, 4 females, Gato River near Gardula, Ethiopia, March 27–May 9, 1912.

1 male, Reishat, north of Lake Rudolf, Kenya Colony, May 25, 1912.

Soft parts: Iris yellowish brown; bill plumbeous black; feet bluish gray, claws pale brown (bill and feet slightly paler in female than in male).

Sclater[2] considers the birds of southern Ethiopia as *kavirondensis* and not *luteolus*, but van Someren[3] writes that Turkana birds "cannot be separated from birds from South Ethiopia or the Nile, and these latter agree with typical Senegal specimens," while *kavirondensis* is restricted to the country from the south of Mount Elgon, along the Nandi Escarpment to south of Lake Victoria. The latter form is darker above, more greenish, less yellowish, and more decidedly streaked on the back and nape. The only birds I have seen from the Uganda–Sudan border (Rhino Camp to Gondokoro) are in winter plumage and are therefore not comparable material, but I follow van Someren in calling the present birds *luteolus*. The males have bright yellow napes, not greenish as in *kavirondensis*. Gyldenstolpe[4] suggests that the characters of the latter form may be based on a partial retention of the winter plumage, but in this he seems to be mistaken.

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[1] Journ. für Orn., 1907, pp. 5–6.

[2] Systema avium Æthiopicarum, pt. 2, p. 737, 1930.

[3] Nov. Zool., vol. 29, p. 139, 1922.

[4] Kongl. Svenska Vet.-Akad. Handl., 1924, p. 30.

The present specimens were in breeding condition when collected; in fact, four nests with eggs were taken, May 4–9, at Gato River. Some of the males are in an early state of molt and have a few yellow feathers among the black ones of the throat and forehead; the females are all in worn plumage. Their dimensions are shown in table 77.

The extent of the black on the forehead in the males varies considerably; in some individuals it extends well behind the posterior margin of the eyes, while in others the upper margin of the eye is almost wholly yellow, not black (fig. 24).

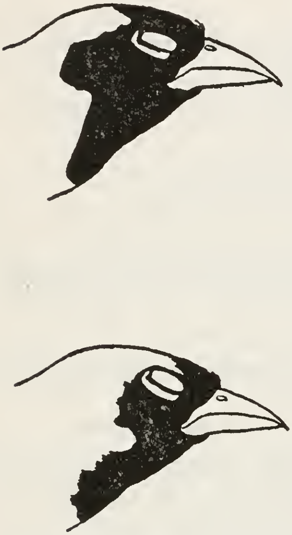

FIGURE 24.—Heads of males of *Ploceus luteolus luteolus* showing variation in the extent of the black area.

The nests found by Mearns are different from those of some other species of *Ploceus* in that they are made not of palm leaf strips but almost wholly of curled and twisted tendrils. They are retort-shaped structures with a downward hanging tubular entrance; the "ball", or main part, of the nest is about 80 mm in diameter, the tubular part is 80 mm long and 50 mm wide. Once two nests were found attached to each other. The eggs, three to a nest, are white and measure about 19.2 by 13.5 mm. The largest egg collected measures 19.5 by 14, the smallest one 19 by 13 mm.

In Bogosland, Jesse found this species breeding in August. Shelley[5] writes that "according to Heuglin they assume their bright plumage in May, commence breeding about the middle of July, and the young are able to fly in October and November."

Mearns did not record any association of the nests of this bird with wasps' nests, as was found to be almost invariably the case in Darfur by Lynes.[6]

PLOCEUS INTERMEDIUS INTERMEDIUS Rüppell

Ploceus intermedius RÜPPELL, Systematische Uebersicht der Vögel Nordost-Afrika's, pp. 71, 76, 1845: Shoa.

SPECIMENS COLLECTED:

3 males, Sadi Malka, Ethiopia, January 28–31, 1912.
2 males, east Black Lake Abaya, Ethiopia, March 21–25, 1912.

I have seen no material of *littoralis* or of *kisumui* and therefore follow Sclater[7] in considering them as identical with *intermedius*.

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[5] The birds of Africa, vol. 4, pt. 2, p. 398, 1905.

[6] Ibis, 1924, pp. 663–664.

[7] Systema avium Æthiopicarum, pt. 2, p. 740, 1930.

Three adult males from Taveta (which should be intermediate between *littoralis* and *kisumui*) are indistinguishable from Ethiopian birds (typical *intermedius*). A female from Ruwenzori is somewhat darker above, especially on the crown and upper back, than two from Taveta, but this difference is probably an individual one. Ogilvie-Grant[8] found Ruwenzori birds to agree quite closely with Shoan specimens.

TABLE 77.—*Measurements of 13 specimens of* Ploceus luteolus luteolus

Locality	Sex	Wing	Tail	Culmen	Tarsus
ETHIOPIA:		*Mm*	*Mm*	*Mm*	*Mm*
Gato River	Male	62.5	41.0	12.0	17.0
Do	do	64.0	41.0	13.5	18.0
Do	do	64.0	42.0	12.5	16.0
Do	do	67.0	41.0	13.0	18.0
Do	do	63.0	41.0	13.0	18.0
Do	do	64.0	43.0	13.0	17.5
Do	do	65.0	42.0	13.5	17.5
Do	do	63.0	40.0	13.5	17.5
KENYA COLONY: Reishat	do	59.5	36.0	11.5	17.5
ETHIOPIA:					
Gato River	Female	60.0	39.0	12.5	16.0
Do	do	61.5	38.5	12.0	16.0
Do	do	59.0	39.0	11.0	16.5
Do	do	60.0	40.0	12.0	17.0

This bird appears to be rather local in Ethiopia, as a number of collectors, such as Neumann and Erlanger, did not meet with it. Blundell and Lovat obtained it at Kassam, not so very far from Sadi Malka; Harris found it in Shoa, while Pease recorded it from southern Gallaland. In Kenya Colony it is commoner, even near the Gallaland and Jubaland borders. It also occurs in Uganda and in northern Tanganyika Territory.

The present birds are in fairly fresh plumage, which is more or less in keeping with the observations of Lovat and Pease, who found birds in full nuptial dress breeding in the middle of March at Daira Aila. In the Kavirondo area of Kenya Colony the species has been found nesting in June.

PLOCEUS VITELLINUS ULUENSIS (Neumann)

Hyphantornis vitellinus uluensis NEUMANN, Journ. für Orn., 1900, p. 282: Ulu Mountains, i. e., Machakos, Kenya Colony.

SPECIMENS COLLECTED:

1 adult female, southeast Lake Abaya, Ethiopia, March 22, 1912.

9 adult males, 5 adult females, Gato River near Gardula, Ethiopia, April 21–May 6, 1912.

1 adult female, 1 immature female, Sagon River, Ethiopia, June 5, 1912.

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[8] Trans. Zool. Soc. London, vol. 19, pp. 276–277, 1910.

5 adult males, 5 adult females, Tertale, Ethiopia, June 8, 1912.
2 adult males, 10 miles southeast Lake Rudolf, Kenya Colony, July 12, 1912.
3 adult females, Endoto Mountains, south, Kenya Colony, July 22, 1912.
1 adult male, 18 miles south of Malele, Kenya Colony, July 29, 1912.
1 adult female, junction of Tana and Thika Rivers, Kenya Colony, August 24, 1912.

Soft parts: Male—iris orange, bill all black, feet and claws pale brown. Female—iris brown; bill with maxilla dusky olive, mandible horn color, feet and claws pale brown. Immature—iris dark brown, bill dusky olive above, flesh color below, feet pale grayish brown, claws light brown.

I have seen no specimens of typical *vitellinus* or of *reichardi* and follow Sclater[9] in considering the present specimens all *uluensis*. Neumann separated *uluensis* from the nominate form on the basis of the black forehead area being broader in the former. Van Someren[10] writes that this character is not particularly useful as a criterion, but that *uluensis* has the mantle much darker, more greenish, and more striped and the underparts deeper yellow.

Several writers have suggested that *Hyphantornis lineolatus* Shelley is a synonym of *P. v. uluensis*. I have not sufficient material seriously to question this conclusion, but it is not impossible that *lineolatus* may prove to be a recognizable race after all. Two adult males in nuptial plumage collected by Donaldson Smith at Darar and Luku are paler, less orange yellow on the abdomen, sides, flanks, and under tail coverts than the present Shoan examples in comparable plumage. The former two birds are somewhat less streaked on the upper back than *uluensis*.

A puzzling and not at all confirmatory observation is that of van Someren,[11] who finds that males from the Northern Frontier Province of Kenya Colony and from Jubaland differ from topotypical *uluensis* in having the chestnut of the crown less extensive caudally, there being a bright yellow hind neck band, and in having brighter yellow underparts. He writes that the females "differ more markedly, being brownish olive on the mantle, not olive-green." To this last statement I may take exception, as both color phases are exhibited in the present series. I have seen two birds from southern Kenya Colony and find that the difference in the males is not constant.

The males collected at Gato River, April 21–May 6, are in breeding plumage; those taken at Tertale, June 8, and in Kenya Colony in July, are all in winter dress. Their size variations are as follows: Wing, 67–74 (average, 71); tail, 45.5–50 (48.6); culmen, 14–16 (14.8); tarsus, 19–22 (20.4 mm). The females vary as follows: Wing, 66–70.5

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[9] Systema avium Æthiopicarum, pt. 2, p. 741, 1930.
[10] Nov. Zool., vol. 29, p. 142, 1922.
[11] Journ. East Africa and Uganda Nat. Hist. Soc., no. 35, p. 57 (133), 1930.

(64.9); tail, 42–48 (45.1); culmen, 14–15 (14.4); tarsus, 19–20 (19.6 mm).

Heuglin[12] found this weaver in winter plumage in small flocks along the White and Blue Niles in May and June. The prenuptial molt begins in June, according to him, but it is earlier in southern Shoa, as Mearns obtained breeding males as early as April 21. It is curious that Mearns found males in nuptial feathering only at Gato River (where he obtained no winter-plumaged birds) and only winter-plumaged birds at Tertale and in northern Kenya Colony. It makes one wonder whether the valley of the Gato River has some climatic, and therefore seasonal, peculiarities, such as the trough of Lake Albert on the Uganda-Congo border, for example, but this is contradicted by the fact that Erlanger[13] found the species breeding early in April in Gurraland, farther to the east.

Mearns collected 17 sets of eggs supposedly of this weaver at Gato River, May 1–13. Some of the sets are positively identified, while others, brought to him by natives, must remain doubtful in this regard. The eggs are enormously variable in color, in markings, and in size. Some have a white ground color while others are bluish green. All are marked with reddish brown; in some cases the marks are fine dots, in others heavy dots and even small blotches; in some the markings are evenly scattered about the egg; in others they are concentrated at the larger pole. In size the eggs vary from 18 by 13 mm to 22 by 15 mm. Erlanger gives extremes of 20.2 by 13.5 and 21 by 14 mm.

The nests are beautifully, compactly woven structures of palm leaf strips and are suspended from above and have the entrance from the underside. There is no tubelike "vestibule" as in nests of some of the weavers, but the entrance is on the same level with the bottom of the outside of the egg chamber itself.

On May 6, Mearns wrote in his diary as follows:

> I have watched this colony of *Hyphantornis* building their nests. All the birds appeared to me to be one species, of which four females and two males were collected to-day, others before. There are about 20 nests on small green thorn saplings, averaging two nests to a tree. They are suspended about 7 feet above the ground from the tips of lower branches. It appears that some birds of this species lay eggs with white and others blue ground color.

Both sexes take part in the nest-building operations. Thus, a male shot on April 24 was in the act of weaving a straw into an unfinished nest. In three instances females were shot inside their nests, apparently by the native collector—assistants merely firing at the nests—a rather discreditable performance to say the least.

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[12] Ornithologie Nordost-Afrika's, etc., vol. 1, p. 556, 1869.

[13] Journ. für Orn., 1907, p. 9.

Mearns saw about 1,000 of these weavers at Gato River, March 29–May 17; at Gato River crossing, May 17, 200 birds were noted; Anole, May 18, 100 seen; Sagon River, May 19, 10 noted; Tertale, June 7–12, 50 birds; El Ade, June 12, 4 birds observed.

PLOCEUS CUCULLATUS ABYSSINICUS (Gmelin)

Loxia abyssinica GMELIN, Syst. Nat., vol. 1, pt. 2, p. 860, 1789: Abyssinia.

SPECIMENS COLLECTED:

1 male, Dire Daoua, Ethiopia, July 2, 1911 (Ouellard coll.).
2 males, Ourso, Ethiopia, October 9–28, 1911 (Ouellard coll.).
1 male, Dire Daoua, Ethiopia, November 14, 1911 (Ouellard coll.)
2 males, 1 female, Sadi Malka, Ethiopia, January 28–29, 1912.
1 male, Gidabo River, Ethiopia, March 18, 1912.
2 males, east Black Lake Abaya, Ethiopia, March 21, 1912.
4 males, southeast Lake Abaya, Ethiopia, March 22–23, 1912.
3 males, Black Lake Abaya, Ethiopia, March 24, 1912.
2 males, near Gardula, Ethiopia, March 28, 1912.
3 males, 9 females, Gato River near Gardula, Ethiopia, April 2–May 2, 1912.

Soft parts: Male—iris pinkish orange, bill all black, feet and claws pale brown. Female—iris pale red in one specimen, yellowish brown in another.

In the present study I have examined a good series of all the races of this weaver except *frobenii*, and my conclusions agree very well with those set forth by Sclater.[14]

The present race occurs from the Simien Mountains and Tigre south through central and southern Ethiopia to the Rendile country and merges with *feminina* near Mount Elgon. Van Someren[15] records *abyssinicus* from as far south as Mount Elgon, Mumias, Kisumu, and Kendu Bay. Granvik[16] considers a specimen from Kendu Bay as *feminina*. North Kavirondan birds are probably intermediate but, on the whole, nearer to *feminina* than to *abyssinicus*. *P. c. abyssinicus* ranges west to Sennar.

The males collected in January are in winter plumage; those collected from March to November are all in breeding dress. The birds show very considerable variation in size, as may be seen from the following data: The wing length varies from 84 to 95 mm in the males (average, 91.8), from 79 to 87.5 mm in the females (average, 83.2); tail, 50.5–59 mm in the males (average, 55.2), 44–50.5 mm in the females (average, 48.3); culmen, 19.5–22.5 mm in the males (average, 20.2), 19–20.5 mm in the females (average, 19.6); tarsus, 19–26 mm in the males (average, 24.1), 21–23.5 mm in the females (average, 22.2).

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[14] Systema avium Æthiopicarum, pt. 2, p. 742, 1930.

[15] Nov. Zool., vol. 29, p. 141, 1922.

[16] Journ. für Orn., 1923, Sonderheft, p. 160.

Mearns found nesting colonies of this weaver at Lake Abaya on March 22. The nests were on the lower branches of leguminous trees growing near the lake. Erlanger[17] found this bird breeding as early as January 10 in the valley of the Sagon River. He also collected nests and eggs during March, April, and May in Gurraland, at Harrar, and at Chirru, between Harrar and Adis Abeba.

Besides the specimens collected, Mearns recorded this bird as follows: The Abaya Lakes, March 24–26, 500 seen; spring between the Abaya Lakes and Gardula, March 26–29, 1,000 birds; Gato River crossing, May 17, 300; Anole, May 18, 300; Kormali, May 19, 100 seen; Bodessa, May 19–June 3, 100 seen; Sagon River, June 3–6, 50 birds; Tertale, June 7–12, 45 birds seen; El Ade, June 12–13, 10 noted; Mar Mora, June 14–15, 10 birds.

PLOCEUS RUBIGINOSUS RUBIGINOSUS Rüppell

Ploceus rubiginosus RÜPPELL, Neue Wirbelthiere, zu der Fauna von Abyssinien gehörig, etc., Vögel, p. 93, pl. 33, fig. 1, 1840: Abyssinia.

SPECIMENS COLLECTED:

1 male, Tertale, Ethiopia, June 9, 1912.
14 males, 15 females, Mar Mora, Ethiopia, June 14–15, 1912.
1 female, Anole, Ethiopia, June 17, 1912.
1 male. Wobok, Ethiopia, June 18, 1912.
2 females, Indunumara Mountains, Kenya Colony, July 14, 1912.
1 male, 4 females, Er-re-re, Kenya Colony, July 25, 1912.
1 female, Le-se-dun, Kenya Colony, July 26, 1912.
1 male, 3 females, Northern Guaso Nyiro River, Kenya Colony, August 1–2, 1912.
1 female, Lekiundu River, Kenya Colony, August 8, 1912.
1 male, Guaso Mara River, Kenya Colony, August 9, 1912.
1 male, 1 unsexed, 3 females, Tana River, Kenya Colony, August 14–19, 1912.
2 females, junction of Tana and Thika Rivers, Kenya Colony, August 25, 1912.

All these specimens are in winter plumage.

The chestnut weaver ranges from Temben and Harrar and Shoa south through southern Somaliland, Jubaland, and Kenya Colony, to central Tanganyika Territory. According to Zedlitz[18] it occasionally occurs as far north as Eritrea. In southern Italian Somaliland it is fairly abundant. In Gallaland it appears to be local. In Kenya Colony the bird is found almost exclusively to the east of the central highlands, although it has been taken at Nairobi. It gets into extreme northeastern Uganda (Moroto) but appears to be scarce there and in the Rendile area. In central and northern Tanganyika Territory it is locally abundant.

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[17] Journ. für Orn., 1907, pp. 7–8.

[18] Journ. für Orn., 1916, p. 14.

In Damaraland and southern Angola another form, *P. r. trothae*, occurs. This form I have not seen.

Erlanger[19] found a nesting colony on the lower Ganale on April 26. On May 9 he found another nesting group in the Garre-Lewin country. In north-central Kenya Colony (Lake Baringo region), the breeding season was found to be in July, when Jackson found great quantities of nests and enormous numbers of the birds in the thorn trees. Farther south, in central Tanganyika Territory, Schuster[20] found birds nesting early in March.

PLOCEUS OCULARIUS ABAYENSIS Neumann

Ploceus ocularius abayensis Neumann, Journ. für Orn., 1905, p. 339: Gigiro in the lake district of southern Abyssinia.

Specimens collected:

1 adult male, Botola, Sidamo, Ethiopia, March 5, 1912.
1 adult "female" (=male), near Gardula, Ethiopia, March 27, 1912.
1 adult male, Gato River near Gardula, Ethiopia, April 17, 1912.
1 immature female, Escarpment, Kenya Colony, September 9, 1912.

I follow Sclater[21] in recognizing *abayensis*, as I have seen but one female of this form (the characters are based on that sex), but I doubt its validity. Hartert[22] finds *abayensis* untenable, and says: "Although the type of *P. ocularius abayensis* is a somewhat dark individual, the examination of our series and that in the British Museum has convinced me that it is impossible to separate a South Ethiopian form." Zedlitz[23] and van Someren[24] also consider *abayensis* a synonym of *crocatus*. Sclater states that *abayensis* occurs in the "lake districts of southern Abyssinia," and *crocatus* in the "Upper White Nile districts, south through Uganda and the western districts of Kenya Colony to Kivu," etc. In other words, the birds of western Kenya Colony are supposed to be different from those of southern Ethiopia. On this basis the example from Escarpment would have to be called *crocatus*, but it is certainly not different from *abayensis*. I have also seen birds exactly agreeing with *abayensis* from Lake Naivasha. I have come to the conclusion that *abayensis*, if distinct, occurs south in the highlands of western Kenya Colony and that *crocatus* lives in the lower elevations (Kisumu, Soronko, North Kavirondo), similar in altudinal range to its main range in Uganda and west to Cameroon.

A female from Gaboon is greener, less yellowish, above and has a shorter wing than any comparable examples of *abayensis*, just as Uganda males (typical *crocatus*) have shorter wings than *abayensis* males. It may be, then, that there is a constant size difference between the two forms. I have seen no real *crocatus* from Kenya Colony, but only published records.

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[19] Journ. für Orn., 1907, p. 7.
[20] Journ. für Orn., 1926, p. 723.
[21] Systema avium Æthiopicarum, pt. 2, p. 746, 1930.
[22] Nov. Zool., vol. 14, pp. 496–497, 1907.
[23] Journ. für Orn., 1916, p. 13.
[24] Nov. Zool., vol. 29, p. 139, 1922.

The present adult males have the following dimensions: Wing, 73, 73.5, 78; tail, 59, 59, 61; culmen, 16.5, 17, 17.5; tarsus, 18.5, 19.5, 20.5 mm, respectively.

The bird collected near Gardula, on March 27 is in molt and has the black feathers coming in on the chin and throat. It was labeled as a female, but the black on the chin and throat suggests an error on the part of the collector.

The coastal belt and the subcoastal area of eastern Africa are inhabited by the race *suahelicus*, characterized by its more golden brownish forehead and cheeks. This bird is said by Neumann[25] and by Sclater to range from the Zambesi north to Lamu. Zedlitz,[26] however, calls attention to Revoil's specimen from southern Somaliland identified by Oustalet as "*Hyphantornis ocularius*," and writes that it is probably *suahelicus*. Bowen[27] records *suahelicus* from Meru and Mount Kenya, but it seems that his birds may have been intermediate between *suahelicus* and *abayensis*. Zedlitz considers *abayenis* to be a blending of *suahelicus* and *crocatus*.

This weaver lives in the thornbrush savannahs and is also found about the edges of wooded areas. Little has been recorded of its habits in Ethiopia and western Kenya Colony. The race *crocatus* breeds from April to June in Uganda.

PLOCEUS NIGRICOLLIS MELANOXANTHUS (Cabanis)

Hyphanturgus melanoxanthus Cabanis, Journ. für Orn., 1878, pp. 205, 232: Mombasa.

Specimens collected:

1 male, 1 female, Tharaka district, Kenya Colony, August 13–14, 1912.
1 male, Tana River, camp 3, Kenya Colony, August 16, 1912.

Neumann[28] separated the birds of southern Shoa under the name *P. melanoxanthus malensis* on the basis of the fact that the black ocular stripe was more distinct behind the eye than in typical *melanoxanthus*. I have examined a male and a female topotype of *malensis* and can not see any difference between them and comparable specimens of *melanoxanthus*. Sclater[29] has also found *malensis* to be untenable.

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[25] Journ. für Orn., 1905, p. 339.
[26] Journ. für Orn., 1916, p. 13.
[27] Proc. Acad. Nat. Sci. Philadelphia, vol. 83, p. 74, 1931.
[28] Orn. Monatsb., vol. 12, p. 162, 1904.
[29] Systema avium Æthiopicarum, pt. 2, p. 746, 1930.

I have seen no birds from western Uganda and therefore can not form a judgment on *P. n. vacillans* van Someren. It is not recognized in Sclater's list.

The present specimens are somewhat worn. Their dimensions are as follows: Males—wing, 74, 75; tail, 50, 55; culmen, 16.5, 18; tarsus, 20.5, 21 mm. Female—wing, 74; tail, 56; culmen, 17.5; tarsus, 21 mm.

This race differs from typical *nigricollis* in having the back deep black, not washed with olivaceous. It ranges from the Omo Valley and the extreme southern portion of Shoa (near Lake Stefanie) and southern Somaliland (Juba River) south through Kenya Colony to central Tanganyika Territory. Occasionally the typical race produces very dark-backed individuals but not so pure black as *melanoxanthus*. A female from Togo is such a case, being much blacker, less olive, above than a series from Gaboon.

More material from central Tanganyika Territory may reveal a recognizable race there, characterized by its larger size, particularly of the bill. A male from Dodoma has a culmen length of 20 mm.

The species has been found nesting at Kipini, Kenya Colony, in July. Judged by the condition of the plumage of the three birds here recorded, they may well have been in breeding condition when shot (August).

PLOCEUS BOJERI (Cabanis)

Hyphantornis bojeri Cabanis, *in* von der Decken, Reisen in Ost-Afrika in 1859–61, etc., vol. 3, Vögel, p. 52, 1869: Mombasa (ex MS. Finsch and Hartlaub).

Specimens collected: 2 immature males, 2 adult females, Endoto Mountains, Kenya Colony, July 22, 1912.

As far as I know this weaver has not been taken as far to the northwest as the Endoto Mountains before. Along the coast it is known from as far north as Jubaland, and south to Dar es Salaam.

Mearns[30] described an inland race, *alleni*, from Miru River near Mount Kenya on the basis of slightly larger size and darker color than in *bojeri*. Van Someren[31] recognizes *alleni* but says that it "is barely recognizable, but is rather larger than coast birds, and has the upper surface and underside tinged with olive-green, not so bright yellow." I find the differences to be so slight as to preclude maintaining *alleni* as a valid form.

Van Someren suggests that the birds of Lamu and northeastern Kenya Colony may be separable as they have rather deeper chestnut breast bands than do birds from Mombasa. In another paper,[32] he notes the same for Jubaland specimens.

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[30] Smithsonian Misc. Coll., vol. 56, no. 20, p. 6, 1911.

[31] Nov. Zool., vol. 29, p. 140, 1922.

[32] Journ. East Africa and Uganda Nat. Hist. Soc., no. 35, p. 57 (133), 1930.

In the event that *alleni* may be considered a good race in the future, the following manuscript notes left by Mearns may be of interest:

> In the original description of *alleni* the female in nonbreeding plumage was described. In the Frick collection are two female birds in breeding plumage. They are paler throughout than specimens of *bojeri bojeri* from Mombasa; upperparts with a slightly grayish, instead of yellowish, wash; entire underparts, cheeks, and superciliary stripe wax yellow instead of primuline yellow. Two immature males * * * are also slightly paler and less yellowish above than typical *bojeri;* entire underparts, cheeks, and superciliary stripe deep colonial buff; maxilla dark; mandible pale, probably yellowish in life. An immature male (Mus. Comp. Zool. No. 56121; collected on the Northern Guaso Nyiro River, January 26, 1910, by Walter R. Zappey) is changing from the olivaceous, immature or nonbreeding plumage to the breeding plumage, and is spotted all over with new yellow feathers.

The dimensions of the present specimens are as follows: Males—wing, 72, 72.5; tail, 49, 51; culmen, 16.5, 16.5; tarsus, 21.5, 22.5 mm. Females—wing, 68, 68; tail, 46, 48.5; culmen, 8, 9; tarsus, 20, 21 mm. respectively.

Sclater[33] considers *aureoflavus*, *castaneiceps*, and *bojeri* conspecific, a conclusion that appears justifiable and logical if we consider only the appearance of the three birds but that is rendered untenable by the fact that all three live side by side in the Teita-Taveta area and adjacent regions. I agree, therefore, with van Someren, who considers them as distinct, though closely allied, species. The female of *aureoflavus* is said to differ markedly from those of *cinereiceps* and *bojeri* in being whitish instead of deep yellowish on the underparts.

The golden weaver is a common bird in eastern Kenya Colony, and nests in good-sized flocks. Near Mombasa it frequents the cocoanut groves; inland it nests in thorn trees.

PLOCEUS GALBULA Rüppell

Ploceus galbula Rüppell, Neue Wirbelthiere, zu der Fauna von Abyssinien gehörig, etc., Vögel, p. 92, pl. 32, fig. 2, 1840: Modat Valley, Abyssinian coast.

Specimens collected:

2 adult males, 5 adult females, Djibouti, French Somaliland, November 23, 1911.
1 immature male, Dire Daoua, Ethiopia, December 22, 1911.
1 adult female, Chobi, Ethiopia, December 23, 1911.
2 adult males, Hawash River, Ethiopia, February 12–13, 1912.

Soft parts: Iris orange-red in males, dark brown in females.

Neunzig[34] has separated the birds of the Aden region, southwestern Arabia, under the name *P. g. arabs*, on the basis of the more grayish-brown shade of the coloring of the females, which are also said to have the inner margin of the primaries less yellowish. Sclater[35] considers it to be inseparable. I have not seen any females, but only adult males from Aden, and they are not different from Ethiopian specimens. For the present, at least, I follow Sclater in this regard.

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[33] Systema avium Æthiopicarum, pt. 2, pp. 747–848, 1930.

[34] Orn. Monatsb., vol. 33, p. 93, 1925.

The immature male collected on December 22 is just beginning to molt and has a few adult, yellow feathers on the occiput. One of the males from the Hawash River, February 13, is subadult, as it has a pale brownish bill and lacks the deep chestnut-brown on the chin and has this color paler and less extensive on the cheeks and forehead than do other, more fully adult birds. The size variations of the adults are as follows: Males—wing, 68, 70, 73, 73.5; tail, 46, 46.5, 48, 51; culmen, 15, 15.5, 16, 16; tarsus, 19.5, 20.5, 21, 21 mm. Females—wing, 64.5, 65, 65, 65, 66.5, 69; tail 41.5, 42.5, 43, 44, 45, 49; culmen, 13.5, 14.5, 15, 15, 15 15.5; tarsus 19, 19.5, 19.5, 20, 20, 20 mm, respectively.

Heuglin found this weaver abundant in the Samhar and Bogos areas at altitudes of from sea level up to 6,000 feet. The species appears to be numerous throughout its range, as it has been met with by most of the collectors who have traveled in northeastern Africa. Blanford[36] writes that in extreme northeastern Ethiopia and adjacent parts of Eritrea the birds breed in August. In British Somaliland, Lort Phillips found the birds nesting in March. In the Sudan, Butler records nests in the latter part of May. Erlanger[37] found nests with eggs on December 27 near Aden, Arabia, in February in northern Somaliland, and from May to August in Ethiopia.

AMBLYOSPIZA ALBIFRONS MONTANA van Someren

FIGURE 25

Amblyospiza albifrons montana VAN SOMEREN, Bull. Brit. Orn. Club, vol. 41, p. 122, 1921: Fort Hall, Kenya Colony.

SPECIMENS COLLECTED: 1 subadult male, 20 miles east of Meru on trail to Tana River, Kenya Colony, August 11, 1912.

In the regions traversed by the Frick expedition three races of the grosbeak weaver are known to occur. They are *aethiopica* of the Omo drainage area of southwestern Ethiopia northeast to Adis Abeba and Harrar, *montana* of the interior of Kenya Colony, and *unicolor* of the coastal area from southern Somaliland to Bagamoyo and thence inland to the Kilosa and Kilimanjaro regions. I have seen no Ethiopian birds and not enough of *unicolor* to attempt a revision, and therefore I follow Sclater[38] in this matter. Zedlitz,[39] however, came to conclusions different from Sclater's. Zedlitz considers all birds from Ethiopia, Uganda, and the north shore of Lake Victoria as *aethiopica*. Sclater considers Kavirondan and Ugandan birds as *melanota*, which race Zedlitz restricts to the White Nile and Bahr el Ghazal. The birds of southern Somaliland Zedlitz considers to be intermediates between *aethiopica* and *unicolor*. The race *mon-*

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[35] Systema avium Æthiopicarum, pt. 2, p. 750, 1930.

[36] Observations on the geology and zoology of Abyssinia, p. 404, 1870.

[37] Journ. für Orn., 1907, p. 12.

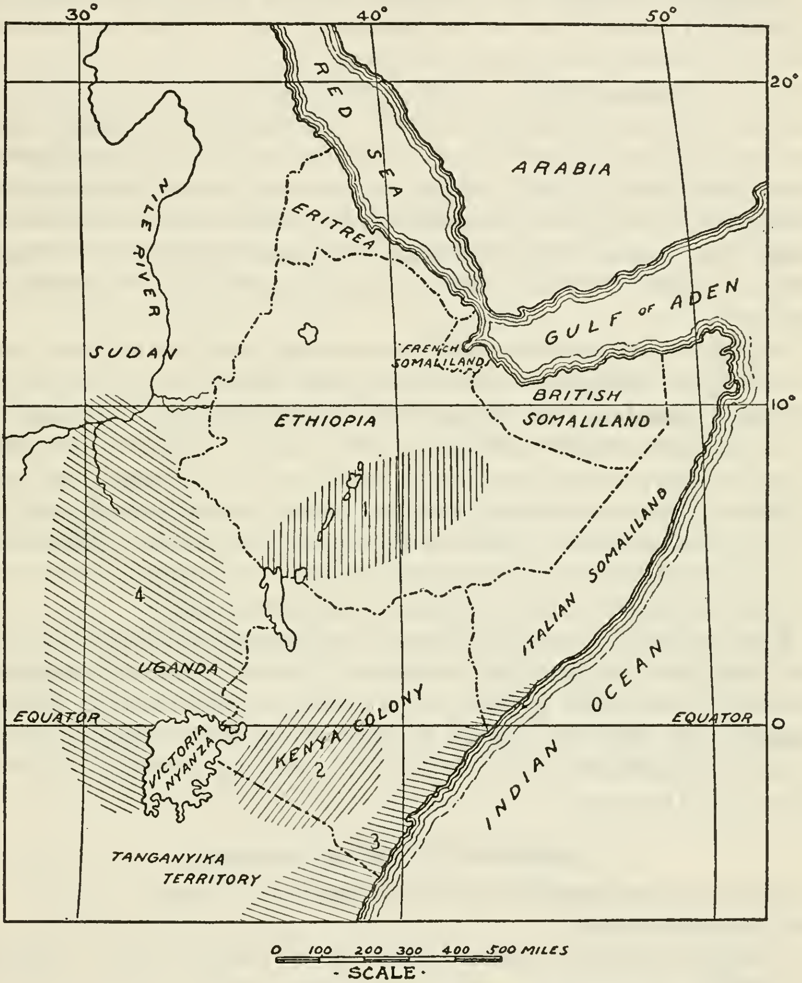
30°
40°
50°
20°
10°
0
RED SEA
ARABIA
NILE RIVER
ERITREA
GULF OF ADEN
FRENCH SOMALILAND
SUDAN
ETHIOPIA
BRITISH SOMALILAND
ITALIAN SOMALILAND
1
4
UGANDA
EQUATOR
EQUATOR
KENYA COLONY
OCEAN
VICTORIA NYANZA
2
INDIAN
3
TANGANYIKA TERRITORY
0 100 200 300 400 500 MILES
· SCALE ·

FIGURE 25.—Distribution of *Amblyospiza albifrons* in northeastern Africa.

1. *A. a. aethiopica.*
2. *A. a. montana.*
3. *A. a. unicolor.*
4. *A. a. melanota.*

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[38] Systema avium Æthiopicarum, pt. 2, p. 754, 1930.

[39] Journ. für Orn., 1916, pp. 23–25.

tana was not yet described at the time Zedlitz did his work. Sclater's arrangement agrees very closely with that adopted by Bannerman[40] which has been used by Gyldenstolpe[41] and others. Van Someren[42] considers *aethiopica* as a synonym of *melanota*.

Although *aethiopica* has been found over a large area in southern Ethiopia it seems to be rather scarce and local, which may account for its absence in the present collection.

Of the Kenyan forms I am in a position to write from personal experience both with the birds in the museum and in the field. The two races differ in coloration, *montana* having a tendency to become almost uniformly black; and in size, *montana* being larger with a heavier bill. The present specimen is subadult and is in molt in the wings and is therefore not suitable for measurement, but a small series of adults from near the type locality uphold the characters of the race.

Zedlitz[43] has produced evidence showing that the males of this weaver pass through a sequence of three plumages. The juvenal plumage resembles that of the adult female; the subadult stage is achieved by a complete postjuvenal molt and is similar to the adult plumage except that there is no white on the forehead and the feathers of the lower breast, abdomen, sides, flanks, back, upper and under tail coverts are more broadly tipped with white. When first acquired these feathers in the adult stage are also tipped with whitish, but the tips are narrow and are quickly worn off.

This grosbeak weaver is a bird of the swamps, where it occurs in fair numbers. In the little swamp at Nairobi there are always a dozen or more pairs to be seen. In spite of their heavy, clumsy-looking bills, these birds build the most finely and compactly woven nests of any member of their family. The nesting season is in March, June, and December.

ANAPLECTES MELANOTIS (Lafresnaye)

Ploceus melanotis Lafresnaye, Rev. Zool., 1839, p. 20: Senegal.

Specimens collected:

2 adult males, Ourso, Ethiopia, September 17, October 7, 1911 (Ouellard coll.).
1 adult male, Serre, Ethiopia, February 13, 1912.
1 adult male, Gato River near Gardula, Ethiopia, April 13, 1912.
1 adult male, 1 immature male, Anole villages, Ethiopia, May 18, 1912.
2 adult males, 1 immature male, 1 immature female, Bodessa, Ethiopia, May 20–31, 1912.
1 adult male, Tana River at mouth of Thika River, Kenya Colony, August 23, 1912.

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[40] Rev. Zool. Africaine, vol. 9, p. 273, 1921.

[41] Kongl. Svenska Vet.-Akad. Handl., 1924, pp. 27–28.

[42] Nov. Zool. vol. 29, p. 144, 1922.

[43] Journ. für Orn., 1916, pp. 23–25.

Soft parts: Male—iris brown, bill all red, feet and claws pale brown.

The red-winged anaplectes occurs in the southern half of Ethiopia and in Somaliland south through Kenya Colony to southwestern Tanganyika Territory, and west through the Sudan to Senegal.

The males vary enormously in the extent of the black on the head. In some the chin and upper throat back as far as the posterior margin of the auriculars are black like the face, while in others the lower cheeks, upper throat, and chin are devoid of black.

Ogilvie-Grant[44] described a dark-backed bird from Beni Schongul, Ethiopia, under the name *A. blundelli.* This has generally been taken to be a synonym of *melanotis.* All the present Ethiopian specimens are somewhat darker-backed, with more red on the middle of the upper back than some from Kenya Colony. However, I have seen some dark-backed birds from the latter country and also from Tanganyika Territory and do not find any constant differences between northern and southern birds. The point to be made is that I have seen no western, Senegambian, birds and do not know whether they too are often dark-backed. If they are always paler backed, then the name *blundelli* will be available for the eastern birds.

The adult males collected have the following dimensions: Wing, 84–89 (average, 86.6); tail, 51.5–57.5 (54.2); culmen, 16.5–18 (17); tarsus, 19–20 (19.4). Female—wing, 80; tail, 54; culmen, 16; tarsus, 18.5 mm. The birds vary as to the abrasion shown, but only the immature birds, taken in May, are in fresh plumage. According to Heuglin the molting season is in November and the breeding time is in August in Sennar. In Ethiopia it is quite different. Erlanger[45] found nests with eggs in northern Somaliland late in February. Mearns found numbers of nests with eggs and young in May at Bodessa. The young birds collected at that time were fully grown and must have left the nests not later than the middle of March, so it seems that the reproductive season is a prolonged one.

Erlanger found that this weaver was nowhere abundant in Ethiopia or Somaliland, being found singly or in small groups, particularly in thin, open woods near streams. Once he found four nests in the same tree. Farther south the species is much more numerous.

At Bodessa, Mearns saw about 30 of these birds on high grassy ridges, but usually in watered valleys.

QUELEA QUELEA AETHIOPICA (Sundevall)

Ploceus aethiopicus SUNDEVALL, Öfv. Svenska Vet.-Akad. Förh., vol. 7, p. 126, 1850: Sennar.

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[44] Ibis, 1900, p. 132.

[45] Journ. für Orn., 1907, pp. 4–5.

Specimens collected:

1 adult male, 1 immature male, White Lake Abaya, Ethiopia, March 18, 1912.
3 adult males, 2 adult females, Lake Abaya, Ethiopia, March 19–21, 1912.
1 adult female, Bodessa, Ethiopia, May 21, 1912.
1 adult male, 1 adult female, Sagon River, Ethiopia, June 4, 1912.
6 adult males, 1 immature male, 14 adult females, Tertale, Ethiopia, June 8–11, 1912.
1 adult female, El Ade, Ethiopia, June 13, 1912.
4 adult males, 1 immature male, 5 adult females, Mar Mora, Ethiopia, June 14–15, 1912.
3 adult males, 1 immature female, Anole, Ethiopia, June 17, 1912.
29 adult males, 5 immature males, 7 adult females, 2 immature females, Wobok, Ethiopia, June 18–19, 1912.
1 adult female, near Saru, Ethiopia, June 19, 1912.
2 adult females, Yebo, Ethiopia, June 21, 1912.
3 adult males, 4 adult females, 1 immature female, Chaffa, Ethiopia, June 23–25, 1912.
2 adult males, 3 adult females, southeast of Lake Stefanie, Kenya Colony, May 12–17, 1912.
4 adult females, Hor, Kenya Colony, June 29, 1912.
1 immature male, 2 adult females, 18 miles southwest of Hor, Kenya Colony, July 1–2, 1912.
1 immature male, Dussia, Kenya Colony, July 4, 1912.
1 adult male, 10 miles southeast Lake Rudolf, Kenya Colony, July 12, 1912.
13 adult males, 1 adult female, 1 immature female, Induumara Mountains, Kenya Colony, July 14–15, 1912.
1 immature, unsexed, Le-se-dun, Kenya Colony, July 26, 1912.
1 adult male, Tana River, Kenya Colony, August 14, 1912.

Soft parts: Male—iris brown, eye rim red; bill all purplish red; feet and claws brownish orange. Female—iris brown; bill paler red and more yellowish than in males and with a dusky area at the tip of the maxilla; feet and claws brownish flesh-color.

The adult males vary enormously in color, some being deep purplish pink on the crown, sides of neck, breast, and center of the abdomen, while others are pale straw yellow on the top of the head and buffy on the breast. The buff-cheeked variety, once named *russi*, appears to be scarcer in Ethiopia than farther to the south, as it is represented by only a single specimen (collected at Wobok). None of the Ethiopian birds have any black on their foreheads, but I find that less than half of the Kenyan and Tanganyikan birds have black on this area, so I do not see any reason for recognizing the race *intermedia*. Van Someren[46] recognizes it as, "more than half of a series of sixteen adult breeding males have small black foreheads as distinct from the Abyssinia *Q. s. aethiopica*, and as three have wide black foreheads as in typical *Q. s. sanguinirostris* of Senegal."

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[46] Nov. Zool., vol. 29, p. 146, 1922.

Sclater[47] writes that *aethiopica* ranges from the "Nile Valley from Khartoum to Lado; east to Sennar, Abyssinia, Somaliland, eastern Kenya Colony; south to Tanganyika Territory" and that *centralis* occurs in "Uganda and the slopes of Ruwenzori." I have examined a very large series from Ethiopia, Kenya Colony, Tanganyika Territory, the eastern Belgian Congo, Uganda, and the Nile Valley of the Sudan (212 specimens) and find that the birds of the Nile Valley of the southern Sudan are best placed with *centralis* and not with *aethiopica.* In fact, a female from as far north as Khartoum is exactly like practically topotypical examples of the Uganda race. Furthermore, *centralis* occurs south to the northwestern shores of Lake Tanganyika, whence I have seen 16 specimens. *Q. q. centralis* differs from *aethiopica* in that the females of the former are darker on the head and mantle than are those of the latter subspecies.

The present series indicates a general lack of seasonal definiteness for molting. Birds in fresh and in worn plumage were taken in every month represented (March to August).

The Ethiopian red-billed weaver is widely distributed over Ethiopia, north to Eritrea (where it appears to be only a visitor and not a permanent resident), Somaliland, and Kenya Colony, south into Tanganyika Territory, and west into the eastern Sudan. It is a very common bird and, during the nonbreeding season, occurs in vast swarms of countless thousands, even millions according to some observers. In Ethiopia, Blanford,[48] Erlanger,[49] and Zedlitz[50] have attested to the numbers of this bird. In Kenya Colony, van Someren,[51] Granvik,[52] and others have not seen it in such huge flocks. but in the Sudan, Sztolcman, Butler, and others have recorded enormous swarms. In spite of its numerical abundance and the rather open nature of the country it inhabits, nothing is known of its breeding habits. In fact, even in a well-settled country like South Africa the nesting of the southern race, *lathamii*, was unknown until relatively recently, when Roberts reported a nesting colony. In captivity the birds are industrious nest-builders, and it is all the more surprising that their nests have not been found in nature. The methods employed in nest-building in captivity have been described in detail.[53]

According to Bowen[54] birds collected July 28–August 8, near Meru, Kenya Colony, were apparently just through breeding. He found flocks of recently fledged young on July 28.

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[47] Systema avium Æthopicarum, pt. 2, p. 758, 1930.

[48] Observations on the geology and zoology of Abyssinia, p. 405, 1870.

[49] Journ. für Orn., 1907, p. 13.

[50] Journ. für Orn., 1911, p. 21; and 1916, pp. 25–26.

[51] Nov. Zool., vol. 29, p. 146, 1922.

[52] Journ. für Orn., 1923, Sonderheft, p. 165.

[53] Friedmann, Zoologica, vol. 2, no. 16, pp. 355–372, 1922.

[54] Proc. Acad. Nat. Sci. Philadelphia, vol. 83, p. 75, 1931.

Mearns noted from 50 to 200 birds daily on his journey from the Indunumara Mountains (July 14) to the Tana River (August 14). In southern Shoa he recorded from 100 to 1,000 birds a day, but curiously enough did not note it at all during his two months' sojourn on the Gato River. South of Bodessa the numbers seen averaged 1,000 birds a day, but this fell off to 50 a day when Mearns came to Hor in extreme northern Kenya Colony.

The birds of the interior of Kenya Colony are slightly grayer, less brownish, on the crown, than are coastal and subcoastal birds, but the difference is slight and only an average one.

QUELEA CARDINALIS PALLIDA Friedmann

FIGURE 26

Quelea cardinalis pallida FRIEDMANN, Proc. Biol. Soc. Washington, vol. 44, p. 119, 1931: Indunumara Mountains, Kenya Colony.

SPECIMENS COLLECTED: 1 adult male, 1 juvenal male, 6 adult females, Indunumara Mountains, Kenya Colony, July 15–17, 1912.

One of the females (U.S.N.M. no. 247325) is the type; the others are paratypes. The adult male is in nonbreeding dress; some of the birds are in fresh, others in worn feathering. The juvenal male resembles the adult females (or the off-season plumage of the male). Inasmuch as this seems to be the only series of *pallida*, it may be well to record the dimensions of the 7 adults: Male—wing, 57; tail, 33; culmen, 11; tarsus, 17.5 mm. Females—wing, 56, 57.5, 58, 58, 59, 60 (average, 58.2); tail, 32, 33, 34, 35, 35, 36 (34.1); culmen, 11, 11, 11, 11, 11.5, 12 (11.2); tarsus, 16, 16.5, 17.5, 17.5, 18, 18 (17.2 mm).

Before the present series was identified the species had been recorded at only one locality in northern Kenya Colony, at Marsabit, where van Someren [55] obtained three males.

The present form is similar to *Q. c. cardinalis* but very much paler above, the dark centers of the feathers much narrower and the margins very pale tawny-buff, not tawny-olive-brown as in *cardinalis*. Dorsally the females (and off-season males) of the nominate form appear dark fuscous with narrow lighter streaks, while those of *pallida* present a buffy aspect with narrow fuscous streaks. The latter race also has a somewhat smaller, weaker bill.

Q. c. pallida is known definitely only from the Indunumara Mountains, but probably the Marsabit birds are of this race as well.

Gyldenstolpe [56] writes that southern Sudanese, Ugandan, and Tanganyikan birds are alike in color, but that Tanganyikan examples are considerably paler on the whole upperparts of the body. It may well be that eastern birds show an approach to *pallida*, as so many

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[55] Journ. East Africa and Uganda Nat. Hist. Soc., no. 35, p. 58 (134), 1930.

[56] Kongl. Svenska Vet.-Akad. Handl., 1924, pp. 43–44.

Somali types range south in the subcoastal belt to Tanganyika Territory and there spread out to the west. I have seen a female from Kilosa, and while it is paler than birds from the north end of Lake Tanganyika and from Uganda, it is much nearer to them than to the very pale north Kenyan race. Gyldenstolpe finds Tanganyikan birds to be slightly larger than true *cardinalis*. This I can not uphold, as my material shows no such difference. Van Someren[57] writes that Nairobi males have brighter, more richly colored red heads and throats than Ugandan examples. This also I can not corroborate with

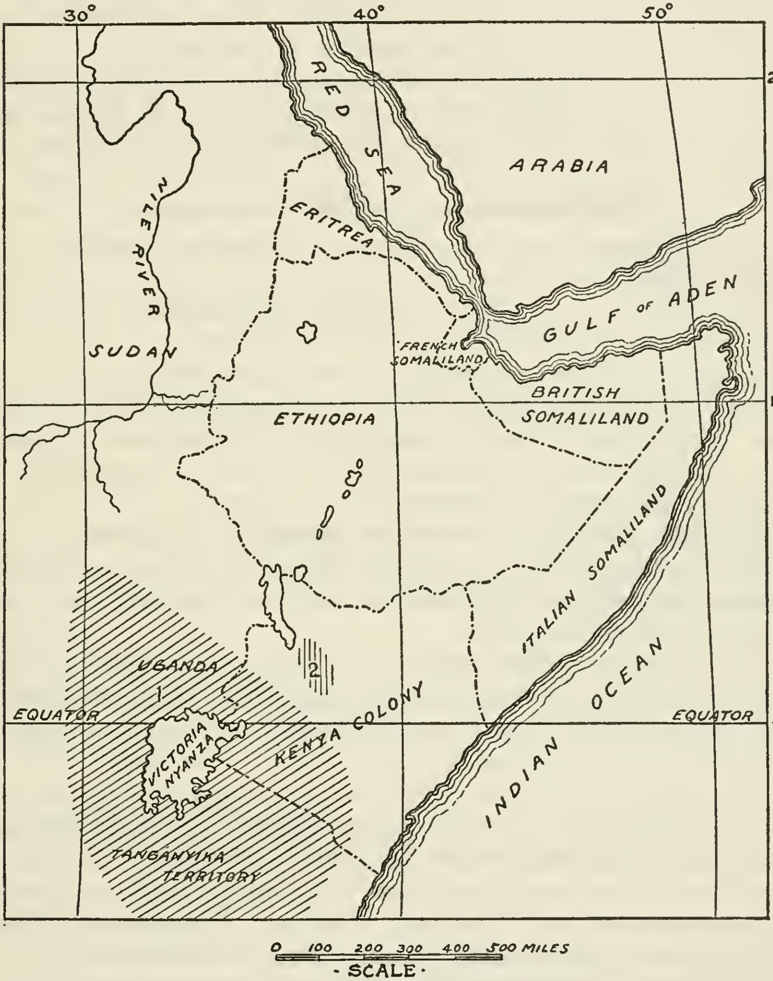
30°
40°
50°
20°
10°
0
RED SEA
ARABIA
NILE RIVER
ERITREA
GULF OF ADEN
SUDAN
FRENCH SOMALILAND
BRITISH SOMALILAND
ETHIOPIA
ITALIAN SOMALILAND
UGANDA
1
2
EQUATOR
EQUATOR
KENYA COLONY
OCEAN
INDIAN
VICTORIA NYANZA
TANGANYIKA TERRITORY
0 100 200 300 400 500 MILES
SCALE

FIGURE 26.—Distribution of *Quelea cardinalis*.

1. Q. c. cardinalis.
2. Q. c. pallida.

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[57] Nov. Zool., vol. 29, p. 146, 1922.

the material available for study. A breeding male from Nairobi has the head and throat slightly lighter, more scarlet, less crimson, than birds from farther west, but the difference is very small.

The birds of Urundi and the northern end of Lake Tanganyika may prove to be separable. I have seen 12 adults from there and they are very dark above. The dorsal streaks are more blackish, less brownish, than in East African specimens of *cardinalis*.

Nothing is known of the breeding season of this race, but the nominate form has been found nesting in May and June at Nairobi and in the Trans-nzoia. In the latter area Granvik[58] found 20 nests on June 6.

EUPLECTES HORDEACEA CRASPEDOPTERA (Bonaparte)

Ploceus craspedopterus Bonaparte, Conspectus generum avium, vol. 1, p. 446, 1850: Abyssinia.

Specimens collected: 19 adult males, 1 juvenal male, 12 adult females, Gato River near Gardula, Ethiopia, April 22–May 11, 1912.

Soft parts: Adult male—feet and claws dark brown; bill black. Juvenal male—iris brown; bill olive-brown on all of maxilla and extreme tip of mandible, rest of mandible flesh color; feet and claws brown. Adult female—iris brown; bill olive-brown above, horn-color below; feet and claws flesh-brown.

Pyromelana flammiceps rothschildi Neumann[59] apparently is a straight synonym of *craspedoptera*. When describing *rothschildi*, Neumann compared it with *sylvatica* and the nominate form, but overlooked Bonaparte's name.

The distribution of the fire-crowned bishop is peculiar in that while the bird occurs in the Sudan, Ethiopia, Uganda, and the narrow coastal belt of Kenya Colony, and southward, it is entirely wanting in the interior of Kenya Colony.

In the present study I have examined about 100 specimens of all four races of this weaver, including the type of *changamwensis*, and I find the distributional summaries given by Sclater[60] to hold in general, but to need some emendation. The present subspecies occurs in the southwestern part of Ethiopia (the Shoan Lakes region, Kullo, and Omo areas), northern Uganda, and the eastern Sudan.

Ogilvie-Grant[61] revived Bonaparte's name *craspedopterus* for the Abyssinian bird because of its having the under tail-coverts white, often with black centers. Neumann used the character of the broader black frontal band in separating Ethiopian birds under the name *rothschildi*. Sclater and Mackworth-Praed[62] extended the range of

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[58] Journ. für Orn., 1923, Sonderheft, p. 166.

[59] Journ. für Orn., 1907, p. 596: Lake Abaya.

[60] Systema avium Æthiopicarum, pt. 2, p. 760, 1930.

[61] Ibis, 1913, pp. 564–565.

[62] Ibis, 1918, pp. 456–457.

craspedoptera to the Sudan, but noted that "the only adult breeding male in the * * * collection (one from Mongalla) has the under tail-coverts particoloured white on one side and brownish on the other, while the frontal band is fairly well-developed. Neither of these distinctions seem to us entirely satisfactory, but we propose to retain the subspecies provisionally."

Lynes[63] writes that "the white under tail-coverts of southern Ethiopian birds is quite a good character for *craspedopterus* Bp. * * * but that the depth of the black frontal band is much too variable (in *hordeacea*) to warrant it being taken for a racial character."

Stoneham[64] finds the frontal band to be an unreliable criterion and states that if a race is to be upheld on the basis of the whitish under tail coverts its range must include not only the eastern Sudan and Ethiopia but also a large part of Uganda, and probably the Luo country of Kenya Colony as well.

The material available for study bears out Stoneham's contentions very well. While the white color of the under tail coverts is a constant and noticeable character of *craspedoptera*, the width of the black frontal band is also constant, although this character varies in *sylvatica.*

The birds of the southern Sudan and of northwestern Uganda may well be somewhat intermediate between true *craspedoptera* and *sylvatica.* Thus, Gyldenstolpe[65] records that birds from Mongalla have fawn-colored, not white, under tail coverts. He refers them to *sylvatica.*

The present specimens are in fairly fresh (some very fresh) plumage. Their dimensions are as follows: Males—wings, 67–80 (average, 75.5); tail, 43–50 (46.8); culmen, 14–16.5 (15.1); tarsus, 18.5–21 (20.4 mm). Females—wing, 64–68.5 (65.8); tail, 36–43 (40); culmen, 14–15 (14.3); tarsus, 17–20.5 (19.0 mm).

Mearns observed this bishop weaver only at Gato River, where, however, he found them in good numbers. The birds were nesting at the time of his visit and he found 10 nests with eggs. All the nests were built near the tops of tall heavy grasses and were fairly well hidden from view. The eggs (2 to 4 in number) were all in a fairly advanced state of incubation (May 11). They are plain, unmarked blue in color; the extreme variations in size are 18 by 15 mm and 17.5 by 14.2 mm.

Neumann[66] found the birds breeding in October at Abai on the Blue Nile.

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[63] Ibis, 1926, p. 401.

[64] Ibis, 1929, pp. 272–273.

[65] Kongl. Svenska Vet.-Akad. Handl., 1924, pp. 44–45.

[66] Journ. für Orn., 1905, pp. 344–345.

Since this account was written, Delacour and Edmond-Blanc[66a] have reviewed the races of this species and consider *sylvatica* a synonym of *hordeacea.* In their map they credit *craspedoptera* with inhabiting all of Kenya Colony, but upon what grounds I do not know. Only coastal birds are mentioned in their text.

EUPLECTES FRANCISCANA PUSILLA (Hartert)

Pyromelana franciscana pusilla HARTERT, Bull. Brit. Orn. Club, vol. 11, p. 71, 1901: Lake Stefanie.

SPECIMENS COLLECTED:

- 1 adult male, White Lake Abaya, east, Ethiopia, March 18, 1912.
- 12 adult males, 1 adult female, Lake Abaya, southeast, Ethiopia, March 21–23, 1912.
- 1 adult male, Black Lake Abaya, Ethiopia, March 24, 1912.
- 52 adult males, 3 immature males, 6 adult females, Gato River near Gardula, Ethiopia, April 18–May 11, 1912.
- 1 adult male, Murle, Omo River, Ethiopia, April 28, 1912.

Soft parts: Iris brown; bill all black; feet pale brown, claws darker brown.

The Abyssinian orange bishop differs from the nominate form by the fact that the orange upper and under tail coverts do not reach to the end of the rectrices in the former and extend to the end of the tail, or even a little beyond it in the latter race. When Hartert first described *pusilla* he based it on its supposedly smaller size; but later[67] he stated that the size character was not reliable. Zedlitz[68] claimed that the length of the tail coverts varied individually and considered *pusilla* as indistinguishable from typical *franciscana.* Of the present 66 adult males, 4 have the coverts reaching the tips of the rectrices, while 62 have the coverts falling short of the end of the tail by from 2 to 5 mm. It follows that while occasional examples may have long tail coverts, the vast majority have short ones, and the race is certainly valid on this basis. The males of the nominate race that I have seen all have the coverts longer than the rectrices.

The nominate form ranges from Senegal to the Nile Valley of the Sudan and to northwestern Uganda; the present race occurs in Shoa, the Hawash area, and Gallaland, and in Somaliland. The species has been taken in western Kenya Colony (Lake Baringo, Elgeyu, and Eldoma Ravine) by Lord Delamere and Sir Frederick J. Jackson. I have seen no Kenyan examples and therefore can not be sure of their subspecific affinities, but they are probably *pusilla.* The bird must be rare in that country, as van Someren, Granvik, Mearns, and other collectors did not meet with it there. In southeastern Kenya Colony an allied species, *E. rufigula* van Someren, appears to link *franciscana* with a third species *nigroventris* Cassin.

[66a] L'Oiseau, new ser., vol. 3, p. 548, 1933.

[67] Nov. Zool., vol. 26, p. 144, 1919.

[68] Journ. für Orn., 1916, p. 27.

The majority of the adults are in breeding plumage; some are subadult, but are also in nuptial dress. Their size variations are as follows: Males—wing, 60–67 (average, 63.2); tail, 32–40 (35.2); culmen, 12–13 (13.5); tarsus, 17–20 (18.9 mm). Females—wing, 56–59 (57.7); tail, 28.5–35.5 (31.5); culmen, 11.5–12.5 (11.9); tarsus, 16.5–17.5 (17.2 mm).

This bishop bird is found in the lower parts of southern Ethiopia. Heuglin found it up to 7,000 feet, and Mearns met with it at 4,000 to 5,000 feet.

The birds are said to be in their winter plumage from December to February and to begin the prenuptial molt early in March. Shelley[69] writes that "before and after the breeding season these Bishop-birds assemble to feed in flocks * * * but I much doubt their being migratory, as Heuglin suggests." In the Sudan the birds (typical *franciscana*) are in breeding dress from August to January, so not only are the two races geographically distinct, but also their life cycles are physiologically isolated seasonally.

Mearns found 4 nests with eggs (4 eggs in 1 nest, 3 in 1, and 2 in the other 2 nests), all at Gato River, on May 11. The eggs are uniform light glaucous blue, and vary in size from 16.5 by 13 to 17.5 by 13.2 mm. Mearns estimated the number of these bishop birds seen at the Gato River, March 29–May 17, to be more than 1,000 During his stay at the Abaya Lakes, March 18–26, he saw about 250. He did not record the bird south of Gato River.

EUPLECTES CAPENSIS XANTHOMELAS Rüppell

FIGURES 27, 28

Euplectes xanthomelas RÜPPELL, Neue Wirbelthiere zu der Fauna von Abyssinien gehörig, etc., Vögel, p. 94, 1840: Temben and Simien, Abyssinia.

SPECIMENS COLLECTED:

6 males, 2 females, Adis Abeba, Ethiopia, January 2–10, 1912.
1 male, Arussi Plateau, Ethiopia, February 17, 1912.

Sclater[70] considers that *xanthomelas* ranges from Ethiopia, south through Kenya Colony to Tanganyika Territory, Nyasaland, the northeastern Transvaal, and to Angola, and that *kilimensis*, *litoris*, and *angolensis* (all of Neunzig) are synonyms of *xanthomelas*. I have examined a good series of birds from the ranges of Neunzig's three forms, and from Ethiopia as well, and find that *kilimensis* and *angolensis* are valid, and that one of them, *kilimensis*, has a wider range than he supposed. I have not seen enough material from

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[69] The birds of Africa, vol. 4, pp. 92–93, 1905.
[70] Systema avium Æthiopicarum, pt. 2, p. 762, 1930.

South Africa to decide on the status of Roberts's two races, *macrorhynchus* and *knysnae*.[71]

In eastern Africa I recognize the following races:

1. *E. c. xanthomelas:* Southern Eritrea and most of Ethiopia except the southeastern part, possibly to Uganda and the southern Sudan.

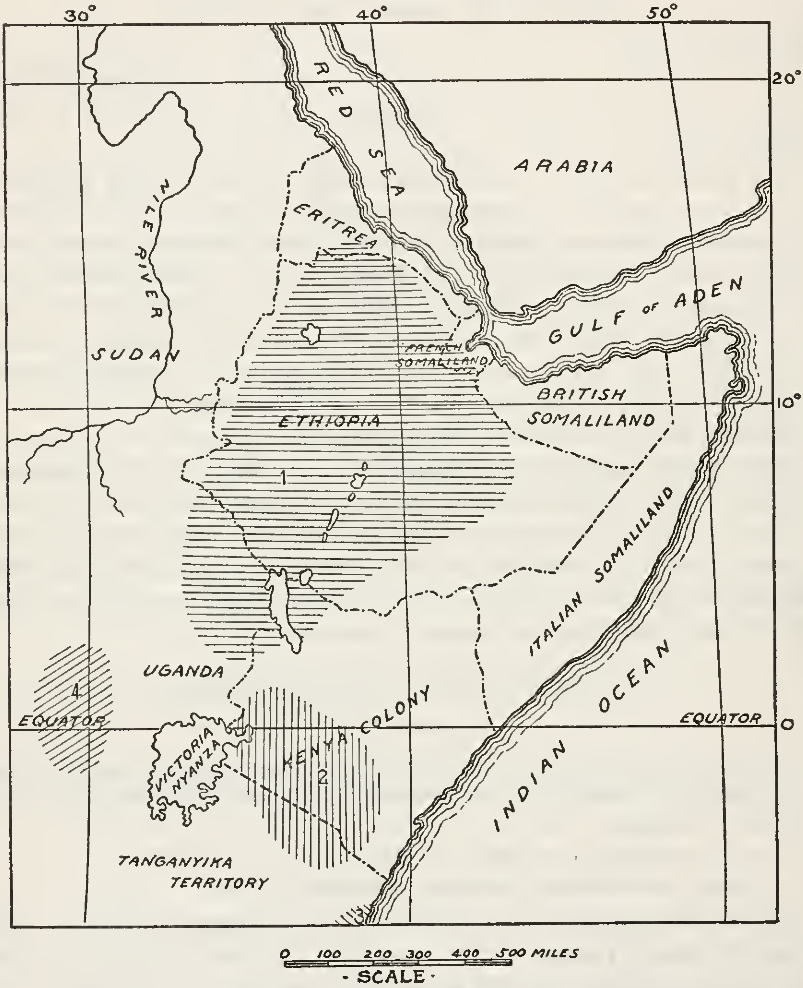
30°
40°
50°
20°
10°
0
RED SEA
ARABIA
NILE RIVER
ERITREA
SUDAN
FRENCH SOMALILAND
GULF of ADEN
BRITISH SOMALILAND
ETHIOPIA
1
ITALIAN SOMALILAND
UGANDA
4
EQUATOR
OCEAN
EQUATOR
VICTORIA NYANZA
KENYA COLONY
2
INDIAN
TANGANYIKA TERRITORY
3
0 100 200 300 400 500 MILES
· SCALE ·

FIGURE 27.—Distribution of *Euplectes capensis* in northeastern Africa.

1. *E. c. xanthomelas.*
2. *E. c. kilimensis.*
3. *E. c. zambesiensis.*
4. *E. c. crassirostris.*

2. *E. c. kilimensis:* The Kilimanjaro area of Tanganyika Territory, and Kenya Colony, from the Taveta-Teita area through Ukamba and the Sotik areas to Kikuyu west to Escarpment and Lake Naivasha, north to Fort Hall. In his original description of this form, Neunzig

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[71] Ann. Transvaal Mus., vol. 6, p. 117, 1919; and vol. 8, p. 266, 1922, respectively.

gave its range as the region from Kilimanjaro and Olgos northward to Ukamba and Kikuyu.

This race is similar to *xanthomelas* but has longer rectrices, paler under wing coverts, and the females and the males in off-season plumage are grayer, less tawny-brownish, especially on the underparts, than *xanthomelas.* Granvik [72] writes that young birds resemble the old females but are considerably paler. "In the adults, for instance", he says, "the fore-neck is dark yellowish brown, but in the young birds it is pale greyish brown. The lesser wing-coverts, which in the former are distinctly olive-yellow, are in the latter pale olive-yellow, and so on." At first sight this would seem to indicate that the character of the grayer coloration ascribed to the females of *kilimensis* is merely a matter of age, but a fine series from Ukamba and Kikuyu districts shows that this is not the case.

3. *E. c. zambesiensis:* Mozambique and the lower Zambesi Valley to Nyasaland, north through the coastal belt of Tanganyika Territory to Tanga, inland to Morogoro. I consider *litoris* Neunzig to be a synonym of this form. I have examined three topotypes of *litoris* and find they agree absolutely with material from Inhambane, Mozambique. This race is like *kilimensis* but smaller, with noticeably shorter wings (male, 65–70 mm (occasionally 72 mm) as against 70–78 mm in *kilimensis*). Sclater considers *litoris* a synonym of *kilimensis* but it is really identical with *zambesiensis.*

Sclater [73] and Belcher [74] both consider Nyasaland birds as "*xanthomelas*" and not as *zambesiensis.* I have seen 10 specimens from Nyasaland (Zomba and Chilwa) and find them all to be *zambesiensis.*

4. *E. c. approximans:* Zululand, Natal, and the adjacent parts of the Transvaal and of the eastern Cape Province. This race differs from all the above in that the adult breeding males lack the yellowish margins on the primaries.

A race that does not directly affect the present report but that may be mentioned here is the heavy-billed Ruwenzori bird, *crassirostris.* It ranges from the lower, northern slopes of Ruwenzori to the Ituri and Uele districts of the Belgian Congo.

I have seen no Ugandan material and do not know whether the birds of that country are *xanthomelas* or *kilimensis* or intermediate.

The graph (fig. 28) illustrates the real nature of the difference in the tail length in *xanthomelas* and *kilimensis*, based on adult males only. From this it may be seen that the great majority of specimens of *kilimensis* have longer tails than do comparable specimens of *xanthomelas.* The specimens of *kilimensis* that approach and overlap the caudal measurements of *xanthomelas* come from the Kikuyu

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[72] Journ. für Orn., 1923, Sonderheft, pp. 168–169.

[73] Systema avium Æthiopicarum, pt. 2, p. 762, 1930.

[74] Birds of Nyasaland, p. 319, 1930.

Escarpment, a highland area that shows many avifaunal affinities with Ethiopia. There is a slight average difference in the wing length, that of *kilimensis* being slightly larger, but the extremes are alike in both races.

The Kiva raa *sabinjo* Reichenow I have not seen. Sclater considers it the same as *xanthomelas*, but it appears to be more like *kilimensis.*

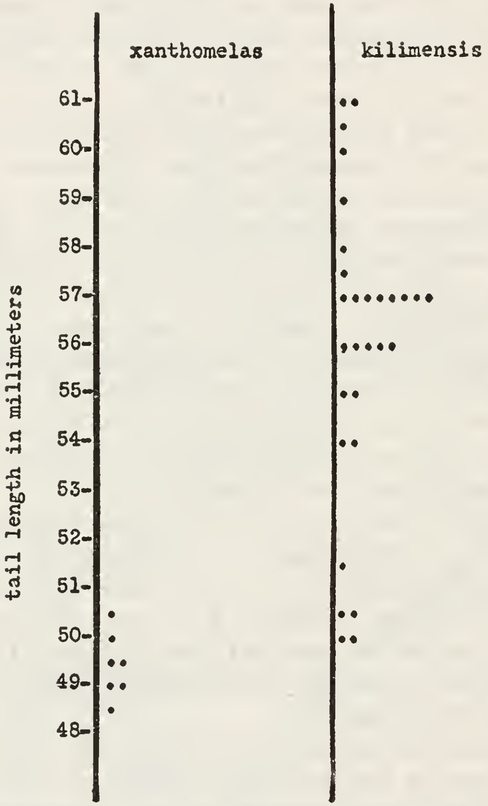

FIGURE 28.—Relative measurements of the tail of *Euplectes capensis xanthomelas* and *E. c. kilimensis.*

The males are in a very late stage of the postnuptial molt and are in fresh winter plumage; the females are more abraded. Neumann[75] collected a male in breeding dress on September 15 at Menagascha near Adis Abeba, but in December in the Djamdjam district he found the birds only in winter plumage. His dates, therefore, agree quite well with the data afforded by the present specimens.

Heuglin found these birds up to as high as 10,000 feet in the Wagara highlands, which is considerably higher than anyone else has recorded them. Antinori and Ragazzi found this species plentiful in Shoa, Donaldson Smith obtained one at Budda in the Galla-Somali area.

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[75] Journ. für Orn., 1905, p. 346.

Erlanger[76] found nests with eggs on July 28 at Djogu in Arussi-Gallaland, and another late in September at Adis Abeba. In Kenya Colony, Jackson[77] found the birds nesting in July and August at Elgeyu, and saw young of the year in November. Van Someren[78] writes that in Kenya Colony and Uganda the birds breed in May and June and again in October and November.

In the collection of J. H. Fleming is a melanistic example of this bishop bird. It is a male, collected at Entebbe, Uganda, May 14, 1916, and was formerly in Sir Frederick J. Jackson's collection. It completely lacks the yellow, which is replaced by black. The bird is molting in the wings and on the body, is solid black, with a bluish white bill. The old feathers are dark fuscous-black; the new ones deep glossy black.

EUPLECTES CAPENSIS KILIMENSIS Neunzig

Euplectes capensis kilimensis NEUNZIG, Zool. Anz., vol. 78, p. 115, 1928: Moschi, Tanganyika Territory.

SPECIMENS COLLECTED:

1 female, Tharaka district, Kenya Colony, August 12, 1912.
8 males, 5 females, Escarpment, Kenya Colony, September 4–7, 1912.

The birds are all in off-season plumage; most of them in very fresh feathering. They show the grayer, less brownish color, especially of the underparts, so characteristic of *kilimensis.* They constitute the altitude record for the distribution of this bird, as far as I know, coming from 7,390 feet.

Bowen[79] found this bird just commencing to breed during the last days of May at Thika. One was seen building its nest there on May 29. At Meru, a month later, he found the old birds in nonbreeding plumage, and this, together with the presence of young of the year, indicated that the breeding season was over. It follows that the season must be earlier at Meru than at Thika.

Mearns recorded this bishop bird as follows: Guaso Mara River, August 9, to Tharaka district, August 14, 50–500 birds daily; Tana River, August 17–20, 100; Thika River, August 28, 20 birds; between Thika and Athi Rivers, August 29, 20 seen; Athi River, August 30–31, 75 birds; Athi River Station, September 1–2, 50 seen; Nairobi, September 3, 20 birds; Escarpment, September 4–12, 500 seen.

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[76] Journ. für Orn., 1907, p. 15.
[77] Quoted in Shelley, The birds of Africa, vol. 4, p. 78, 1905.
[78] Ibis, 1916, p. 416.
[79] Proc. Acad. Nat. Sci. Philadelphia, vol. 83, p. 76, 1931.

UROBRACHYA AXILLARIS TRAVERSII Salvadori

Urobrachya traversii SALVADORI, Ann. Mus. Civ. Genova, vol. 26, p. 287, 1888: Sutta, Shoa.

SPECIMENS COLLECTED: 3 males, near Aletta, Sidamo, Ethiopia, March 6, 1912.

In the absence of adequate material to attempt a critical study of the racial forms of the fan-tailed widow bird, I follow Sclater's arrangement.[80] I have seen small series of the following races—*axillaris*, *zanzibarica*, *phoenicea*, and *traversii*, and they support Sclater's conclusions.

The Abyssinian race, characterized by its large size (wings, 88–93 mm), occurs in the Shoa, Sidamo, Kollu, and Kaffa districts and does not appear to range east into Gallaland, as that area is too low for it. It is a bird of the middle altitudes (4,500–9,300 feet) and, according to Neumann,[81] lives in cornfields and grainfields, often together with *Euplectes capensis xanthomelas*, *Euplectes taha stricta*, and *Coliuspasser ardens laticauda*. It must be rather local, as Erlanger did not meet with it in his celebrated journey. Shelley [82] has summarized previous knowledge of this bird. Apparently, the bird is known only from the following localities: Adis Abeba; Antotto; Sutta; Urafa Bonata; Manna Gasha; Lekamti; Lake Zwai; Aletta; Kimo in the Kollu area; Bola Goshana in Doko; and Anderatscha in Kaffa. Lovat noted this species to be very local; Pease saw large flocks at Lake Zwai; Mearns observed large flocks along meadow streams near Adis Abeba.

The present specimens are in very fresh winter plumage. Neumann collected birds in nuptial dress in Shoa in September and October; Ragazzi also obtained breeding-plumaged birds in October. Neumann writes that the breeding season of this, as of so many other birds in Shoa, is in September and October. Judged by the extreme freshness of the winter plumage of the present March birds, in southern Shoa the breeding season seems to extend beyond October very considerably.

The dimensions of the present specimens are as follows: Wing, 89, 91, 92; tail, 62, 68, 70; culmen, 15, 15.5, 16; tarsus, 22, 23.5, 24.5 mm, respectively.

Mearns noted this widow bird on the following occasions: Aletta, March 7–13, 50 birds seen; Galana River, March 19–20, 40; Black Lake Abaya, March 21, 20 birds observed. Mearns's records appear to be the southernmost ones for this bird.

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[80] Systema avium Æthiopicarum, pt. 2, pp. 764–765, 1930.

[81] Journ. für Orn., 1905, pp. 346–347.

[82] The birds of Africa, vol. 4, pp. 67–68, 1905.

Delacour and Edmond-Blanc[82a] have recently revised the forms of this species with far more material for a basis than has been available to me. The reader interested should consult their paper.

COLIUSPASSER ALBONOTATUS EQUES (Hartlaub)

Vidua eques HARTLAUB, Proc. Zool. Soc. London, 1863, p. 106, pl. 15: Kaseh, i. e., Tabora, Tanganyika Territory.

SPECIMENS COLLECTED:

13 adult males, 4 adult females, Gato River near Gardula, Ethiopia, April 8–May 4, 1912.
1 adult female, Tertale, Ethiopia, June 8, 1912.
1 immature male, 1 adult female, Mar Mora, Ethiopia, June 14, 1912.
1 adult female, Anole, Ethiopia, June 17, 1912.
3 immature males, 2 adult females, Meru Forest, Kenya Colony, August 10, 1912.
1 immature male, 2 adult females, Tharaka district, Kenya Colony, August 12, 1912.
1 immature male, Tana River, Kenya Colony, August 17, 1912.

Neunzig[83] has separated Abyssinian birds, under the name *abyssinica*, on the basis of supposedly smaller wing and tail dimensions and a more brownish cast in the nuptial plumage of the adult males. I have compared the present series with a fair series from Kenya Colony and Tanganyika Territory and find no reason for recognizing *abyssinica*, as none of the characters have any existence in fact. Similarly, *C. a. sassii* Neunzig, described from the Kivu district, is not valid.

The present form occurs from central and southern Shoa south through Uganda to Urundi and the Kivu district, Belgian Congo, and through Kenya Colony to northern Tanganyika Territory. Sclater[84] writes that *eques* ranges over the northern half of Tanganyika Territory and that *albonotatus* reaches its northern limits in Nyasaland and on the Royuma River on the Mozambique–Tanganyikan border. Shelley,[85] however, definitely states that *albonotatus* ranges north to Ugogo, whence *eques* is also known. It may be that the two meet in that region; I have seen undoubted *albonotatus* from Dodoma. If both forms breed together anywhere in north-central Tanganyika Territory, it may be necessary to consider them specifically distinct. They are easily distinguished by the color of the lesser upper wing coverts in the breeding males—yellow in *albonotatus* and chestnut in *eques*.

All the birds collected in southern Ethiopia, April 8–June 17, are in worn breeding plumage; those obtained in Kenya Colony, August

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[82a] L'Oiseau, new ser., vol. 3, pp. 694–701, 1933.

[83] Zool. Anz., vol. 78, p. 117, 1928.

[84] Systema avium Æthiopicarum, pt. 2, p. 766, 1930.

[85] The birds of Africa, vol. 4, p. 47, 1905.

10–17, either are in a late stage of the postnuptial molt or are completely in fresh winter plumage. The size variations are as follows: Male—wings, 73.5–80 (average, 76); tail, 75.5–90.5 (74.4); culmen, 13–15 (14.2); tarsus, 19–21 (19.9 mm). Females—wings, 63–66.5 (65.2); tail, 35–43.5 (40.5); culmen, 12.5–14 (13.2); tarsus, 17.5–19 (18.3 mm).

This bird appears to be rather local in Ethiopia and absent in large areas in extreme northern Kenya Colony. It is a denizen of swamps and moist grasslands, which accounts for its discontinuous distribution. According to Shelley,[86] the "breeding season varies with the climate, the object probably being to secure an adequate supply of the food best suited to the young birds."

Near Mount Kenya, Delamere found the birds in full nuptial dress in February; Pease found them still in the winter plumage at that time of the year at Roquecha, farther north (and also at Harrar in November). Van Someren [87] found young birds in February, March, August, and September, and an adult male in off-season dress in November, in Uganda and Kenya Colony.

Besides the actual specimens collected, Mearns recorded this weaver as follows: Black Lake Abaya, March 21–23, 10 birds seen; Gato River near Gardula, March 29–May 17, 600; Anole, May 18, 10 birds; Bodessa, May 19–June 3, 200; thence not again until reaching the Lekiundu River, August 4–8, 600 birds; Guaso Mara River and Meru Forest, August 9, 500; Meru Forest and Kilindi, August 10, 100; 20 miles east of Meru, August 10, 100; Tharaka district, August 12, 50 seen.

COLIUSPASSER ARDENS SUAHELICA (van Someren)

Penthetria laticauda suahelica VAN SOMEREN, Bull. Brit. Orn. Club, vol. 41, p. 121, 1921: Nairobi River.

SPECIMENS COLLECTED:

1 male, Meru Forest, Kenya Colony, August 10, 1912.
1 male, Tana River, Kenya Colony, August 18, 1912.
3 males, 1 female, Escarpment, Kenya Colony, September 8, 1812.

The bird from Meru forest has the wings and tail of the breeding plumage; the rest of the body is in "winter" dress. The other specimens are all in dry-season plumage.

Sclater [88] follows the conclusions arrived at by Neunzig,[89] except that the former author recognizes *teitensis* van Someren, a race that Neunzig fails to mention at all. All the Teita birds available to me (6 specimens) are in off-season plumage and are of no value as indicators of racial validity, and I therefore accept Sclater's decision, noting, however, that he says that *teitensis* is only doubtfully distinct from *ardens*. The ranges given for these two forms are a little difficult to grasp—*teitensis* was described from the Bura Hills, not far from Voi, while *suahelica* is said to range to Kilimanjaro. It appears from this that if *teitensis* be chiefly a coastal race, then topotypical birds would really be intermediate between it and *suahelica*. If the two occur together, they would have to be considered distinct species.

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[86] The birds of Africa, vol. 4, p. 46, 1905.
[87] Ibis, 1916, p. 418.
[88] Systema avium Æthiopicarum, pt. 2, pp. 767–768, 1930.
[89] Verh. Orn. Ges. Bayern, vol. 17, pp. 235–239, 1927.

In Ethiopia a longer-winged, shorter-tailed race, *laticauda*, replaces the present one. In view of the fact that Blanford, Antinori, Lovat, Erlanger, and others observed and collected *laticauda*, it is rather surprising that Mearns never met with it. The wholly black phase, *concolor*, has never been recorded from Ethiopia, and it is of extreme interest in that it appears to be a frequent mutant in much of western equatorial Africa, even becoming the dominant, if not the sole, form in some regions, such as around Masindi, Uganda, and the Uelle district of the Belgian Congo.

The Kenya red-naped whydah and the Abyssinian form have the posterior part of the crown, nape, throat collar, and hind cheeks red in adult breeding males, while in *ardens* and *teitensis* the red is confined to the throat collar. Granvik[90] has found that male birds from near Mount Elgon have the band on the throat broader and darker red than in Kikuyu examples (typical *suahelica*), but he does not suggest describing them as a racial group. I have seen no Elgon birds, but a good series from the Kikuyu and Ukamba areas shows a good deal of variation in this character. It seems better not to attempt any further splitting.

This species is common in the grassy areas of Kenya Colony. Van Someren[91] found nests in "grassy patches in the scrub and by the swamps. The nest is constructed of grass. * * * The eggs are bluish or greenish, with numerous spots and blotches of ash-brown and darker brown. Two is the usual clutch, but as many as four have been found." The birds have been found breeding in August and in May, and the nesting season probably includes other months as well. In Ethiopia *laticauda* has been found nesting in May.

Since the above account was written Delacour and Edmond-Blanc[91a] have monographed this species with conclusions with which the present account is in harmony.

Mearns noted about 500 of these birds at the Lekiundu River, August 8, about 1,000 near Meru, August 9–10, and 500 at Escarpment, September 4–12.

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[90] Journ. für Orn., 1923, Sonderheft, pp. 170–171.

[91] Ibis, 1916, p. 418.

[91a] L'Oiseau, new ser., vol. 3, pp. 710–715, 1933.

DREPANOPLECTES JACKSONI Sharpe

Drepanoplectes jacksoni SHARPE, Ibis, 1891, p. 246, pl. 5: Masailand, near Lake Nakuru.

SPECIMENS COLLECTED: 3 males, Escarpment, Kenya Colony, September 5, 1912.

These specimens are all in off-season plumage. One of them is rather abraded; the other two are freshly feathered.

Jackson's whydah is one of the most remarkable of the long-tailed weavers, forming a monotypic genus and inhabiting a relatively small area. It is found in the highlands of western and central Kenya Colony from western Ukamba and Kikuyu to Nandi, Eldoret, Lake Baringo, and Mount Kenya. It is common in wet meadows, but is somewhat local. It does not get into the Uasin Gishu Plateau beyond Eldoret and is not known from Mount Elgon.

Because of the unusual individual dancing grounds made by the males, much has been written concerning this fine bird. Shelley[92] has summarized previous observations. On the whole, the majority of the birds molt in January and February and in September and October, although some molt in June and even July and November. Nests with eggs have been found in May, June, and July.

Mearns saw about 100 of these birds at Escarpment, September 4–12.

SPERMESTES CUCULLATUS SCUTATUS Heuglin

Spermestes scutatus HEUGLIN, Journ. für Orn., 1863, p. 18; Dembea, Abyssinia.

SPECIMENS COLLECTED:

1 male, Loku, Sidamo, Ethiopia, March 5, 1912.
1 female, Botola, Sidamo, Ethiopia, March 5, 1912.
1 male, Meru Forest, Kenya Colony, August 10, 1912.
1 female, Tharaka district, Kenya Colony, August 14, 1912.

The Abyssinian bronze mannikin differs from the West African, nominate race in that it lacks the greenish patches on the sides of the breast, found in typical *cucullatus*. The present race occurs from Ethiopia south through eastern Africa to Natal and the eastern Cape Province.

Dembea, north of Lake Tsana, appears to be the northernmost locality from which this bird is known. It has been taken on a number of occasions, by various collectors, in Shoa, but not in eastern Gallaland or in Somaliland, except for Erlanger's specimen from Umfudu-Gobwin, in Jubaland.[93] Lovat obtained it at Telagubaie near Kosso, north of Harrar; Pease met with it near Lake Zwai; Erlanger found it in the Hawash region, near Adis Abeba, and in the Shoan lake district. Zaphiro obtained specimens at Gibbe River,

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[92] The birds of Africa, vol. 4, pp. 55–58, 1905.

[93] Journ. für Orn., 1907, p. 17.

Jimma, Gomma, Kullo, Gofa, Baku, and Konso, in southwestern Shoa.[94] Neumann found it in the Omo Basin.

In Kenya Colony this bird is widely distributed and common. Van Someren[95] lists *scutatus* as a species, as he claims to have obtained *cucullatus* together with it at Nairobi and Elgon. He records *cucullatus* from as far east as Taveta. This is so different from the results arrived at by Sclater[96] and shown by the total comparative series I have studied that I can not help but think that van Someren is mistaken in his identification. I have seen 29 adults of *scutatus*, and only one of them has any trace of metallic green or purple on the flanks. On the other hand, every one of a series of 10 adults from western Africa (east through Uganda) and of 16 from Puerto Rico (where the typical race was introduced and is now well established as a wild bird) has this metallic area on the flanks. It is hard to conceive of van Someren getting such opposite results in so extensive a collection as his. Bowen,[97] however, records three males of *S. c. cucullatus* from Meru, Kenya Colony. "All three", he says, "have the green spot on the side of the chest which is characteristic of this race."

Bannerman[98] has found this character to be somewhat inconstant but writes that the nominate form differs from *scutatus* by its more purplish throat (browner in *scutatus*), "by the more heavily barred rump and upper tail-coverts, and by the more metallic green on the sides of the body, which is often, though not invariably, absent in specimens of *S. c. scutatus*." Gyldenstolpe[99] finds that none of the characters holds very consistently and concludes that *scutatus* is a race of doubtful validity. While I fully recognize the fact that *scutatus* is not so well marked a race as many others, still the material available supports it, and I therefore consider van Someren's and Bowen's Kenyan "*cucullatus*" as *scutatus*. Neunzig[1] does not consider the flank spot as the chief racial character, but relies mostly on the duller color of the rump and upper tail coverts in *scutatus*.

Within the race *scutatus* there appears to be some variation in size that is correlated with geography. The birds of northeastern Africa are large (wings, 49–52 mm), of the equatorial districts small (wings, 46–47 mm), and of southeastern Africa large again (wings, 46–51 mm). These differences merge so gradually that it is not possible to recognize racial forms on the basis of size.

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[94] Ogilvie-Grant, Ibis, 1913, p. 568.

[95] Nov. Zool., vol. 29, p. 154, 1922.

[96] Systema avium Æthiopicarum, pt. 2, p. 769, 1930.

[97] Proc. Acad. Nat. Sci. Philadelphia, vol. 83, p. 77, 1931.

[98] Rev. Zool. Africaine, vol. 9, pp. 294–295, 1922.

[99] Kongl. Svenska Vet.-Akad. Handl., 1924, p. 51.

[1] Zool. Anz., vol. 70, pp. 191–192, 1927.

The dimensions of the present species are as follows: Males—wing, 49.5, 50.5; tail, 33, 33; culmen, 10, 10; tarsus, 12, 12 mm. Females—wing, 49.5, 50; tail, 29, 31.5; culmen, 10, 10; tarsus, 11, 12.5 mm. All are in slightly abraded condition.

Jackson [2] writes that this bird is plentiful in the vicinity of habitations in Kenya Colony. He says: "At Kibwezi it was breeding in March. The nest, which is roughly made of dry grass and lined with feathers, is generally placed in a table-topped mimosa or other thorny tree, some 10 to 25 feet from the ground." The nesting season is probably indefinite in extent as *cucullatus* has been found nesting in every month of the year in Uganda. The nominate form has been known to use old nests of *Ploceus reichenowi*, as well as to build its own, but the eastern race appears to build for itself regularly.

EUODICE CANTANS MERIDIONALIS (Mearns)

Aidemosyne cantans meridionalis Mearns, Smithsonian Misc. Coll., vol. 61, no. 14, p. 4, 1913: Indunumara Mountains, Kenya Colony.

Specimens collected:

1 female, Djibouti, French Somaliland, November 23, 1911.
1 female, Sadi Malka, Ethiopia, January 31, 1912.
1 male, Iron Bridge, Hawash River, Ethiopia, February 5, 1912.
1 male, Hawash River, above Iron Bridge, Ethiopia, February 6, 1912.
3 females, Turturo, Ethiopia, June 15, 1912.
4 males, 4 females, Chaffa, Ethiopia, June 24–25, 1912.
2 males, 18 miles southwest of Hor, Kenya Colony, July 1, 1912.
7 males, 5 females, Indunumara Mountains, Kenya Colony, July 15–16, 1912.
1 female, Le-se-dun, Kenya Colony, July 26, 1912.
1 female, Meru River, Kenya Colony, August 8, 1912.

I have not seen any topotypical material of *tavetensis* van Someren [3] and therefore can not decide its validity. Sclater [4] considers it indistinguishable from *meridionalis*. I have seen two specimens from Dodoma, Tanganyika Territory, which were identified in Tring as *tavetensis* and which are practically indistinguishable from the type of *meridionalis*. Hartert [5] has also doubted the validity of *tavetensis*. The characters on which *tavetensis* was based are darker, more grayish dorsal coloration, the scaly pattern on the forehead more pronounced, the throat spots larger and more distinct, and the underparts whiter, less washed with pale creamy buff. I find the dorsal and frontal color differences do not hold; the chin spots vary in the present series of *meridionalis;* the whiter underparts seem to be the only valid character, and the difference there is a very small one.

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[2] Ibis, 1899, pp. 604–605.
[3] Bull. Brit. Orn. Club, vol. 41, p. 121, 1921: Simba.
[4] Systema avium Æthiopicarum, pt. 2, p. 772, 1930.
[5] Nov. Zool., vol. 34, p. 195, 1928.

The Djibouti specimen is quite different from the rest of the present series, being very much paler and lighter, more tawny-buff, less brownish or grayish brown, than the others from Ethiopia and Kenya Colony. Additional material may possibly reveal a distinct coastal race in French Somaliland. In fact, when describing *meridionalis*, Mearns wrote[6] that "on crossing the Red Sea to French Somaliland a very pale form of *Aidemosyne* was found at Djibouti which contrasts strikingly with specimens from Aden; rising thence to the Hawash Valley, Abyssinia, a slightly darker form occurs which remains quite constant through Abyssinia and British East Africa." Apparently the dark-backed Arabian form *orientalis* occurs in British Somaliland, and *meridionalis* is the form in the arid belt of northern Kenya Colony, so it seems that if there be a recognizable race near Djibouti, its range would be rather restricted. Zedlitz[7] records a bird from the upper Ganale, in southern Italian Somaliland, as *orientalis*, but he considers *meridionalis* and *orientalis* as one form.

The Djibouti bird is as pale as *inornata*, and inasmuch as the latter occurs in Eritrea, I thought the French Somaliland specimen might be of that form. However, it has the upperparts definitely barred as in *meridionalis*. It may be an intergrade between *inornata* and *meridionalis*, but if further material should show the Djibouti birds to be consistently pale and barred, it would be entirely justifiable to name them.

The race *inornata* occurs in Eritrea and extreme northeastern Ethiopia, as well as in the Red Sea Province and lower White Nile in the Sudan. Zedlitz[8] recorded it from Cheren, Scetel, and Barentu, while Blanford[9] saw it in flocks about Ailat and Ain, and on the Anseba.

E. c. meridionalis ranges beyond the limits given by Sclater, who places the southern terminus of its distribution in the Kilimanjaro region. It is known from Kinyambwa, Dodoma, in central Tanganyika Territory.

The size variations of the present series are as follows: Males—wing, 50–55 (average, 51.4); tail, 40–44 (41.8); culmen, 8.5–10 (9.5); tarsus, 12.2–13 (12.5 mm). Females—wing, 48–52 (50); tail, 37–45 (40.6); culmen, 9.2–10 (9.7); tarsus, 12–13 (12.4 mm). Compared with these figures, the Arabian form *orientalis* presents the following average dimensions: Males—wing, 49.9; tail, 43.4; culmen, 9.9; tarsus, 11.2 mm. Females—wing, 49.3; tail, 41; culmen, 9.8; tarsus, 12 mm.

The birds are mostly in worn plumage.

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[6] Smithsonian Misc. Coll., vol. 61, no. 14, p. 4, 1913.

[7] Journ. für Orn., 1916, p. 29.

[8] Journ. für Orn., 1911, p. 24.

[9] Observations on the geology and zoology of Abyssinia, p. 408, 1870.

This species is an inhabitant of the acacia grasslands and goes about in small flocks. I have not been able to find anything recorded as to the breeding season in Ethiopia, but in Eritrea the form *inornata* is said by Zedlitz[10] to nest from August to October. Zedlitz refers his specimens to *orientalis* but at the time *inornata* had not been described. In the Sudan, Butler found *inornata* breeding in February, March, May, September, and October.

Besides the actual specimens collected, Mearns noted this species as follows: Chaffa village, June 23–25, 325 birds seen; Hor, June 26–30, 20 noted; Dry River 18 miles southwest of Hor, July 1–2, 50; Dussia, July 3–4, 10 birds; 10–25 miles south of Lake Rudolf, July 9–10, 6 seen; Indunumara Mountains, July 13–18, 500; south base of Endoto Mountains, July 21–24, 10 birds; Er-re-re, July 25, 50; Le-se-dun, July 26, 50; 24 miles south of Malele, July 29, 4.

Lavauden[11] has recently recorded this species as far north as the oasis of Bilma in the French Sahara.

ODONTOSPIZA CANICEPS (Reichenow)

Pitylia caniceps Reichenow, Orn. Centralbl., vol. 4, p. 139, 1879: Massa, Tana River.

Specimens collected:

- 2 males, 2 females, Gato River near Gardula, Ethiopia, April 26–May 11, 1912.
- 1 male, Gato River Crossing, Ethiopia, May 17, 1912.
- 1 male Sagon River, Ethiopia, June 6, 1912.
- 1 male, Er-re-re, Kenya Colony, July 25, 1912.
- 1 female, Northern Guaso Nyiro River, Kenya Colony, August 1, 1912.

The present specimens extend the known range of the gray-headed silverbill to southern Shoa, thereby adding the species to the fauna of Ethiopia. Previously it was known from the interior of the southern half of Kenya Colony north to the Northern Guaso Nyiro River and to Marsabit, northwest across northern Uganda to the West Nile district. The records nearest to the present Shoan ones were from the Turkana country in northeastern Uganda.

The Ethiopian birds average slightly darker on the breast than Kenyan and Tanganyikan examples, but the difference is very slight. Moreover, van Someren[12] writes of Kenyan and Ugandan birds that some "are pale-breasted, and some dark-coloured, but the differences are not limited to definite ranges. Uganda and East African specimens are equal in size."

The present birds are in fairly fresh plumage. Their size variations are as follows: Males—wing, 57–64 (average, 58.6); tail, 44–47

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[10] Journ. für Orn., 1911, p. 24.

[11] Alauda, vol. 2, no. 2, pp. 133–135, 1930.

[12] Nov. Zool., vol. 29, p. 153, 1922.

(45); culmen, 10.5–11.5 (10.9); tarsus, 13.5–15.5 (14.7). Females—wing, 57–60 (58); tail, 45–47 (46); culmen, 10–11 (10.7); tarsus, 13–15.5 (14.4 mm).

This species appears to be generally uncommon, and little has been recorded of it. The breeding season and habits seem to be unknown.

AMADINA FASCIATA ALEXANDERI Neumann

Amadina fasciata alexanderi NEUMANN, Bull. Brit. Orn. Club, vol. 23, p. 43, 1908: Waram, Hawash River.

SPECIMENS COLLECTED:

7 males, 3 females, Dire Daoua, Ethiopia, December 7–18, 1911.
2 males, Sadi Malke, Ethiopia, December 22, 1911.
2 males, near Saru, Ethiopia, June 19, 1912.
1 female, Chaffa, Kenya Colony, June 24, 1912.
2 males, 1 female, 18 miles south of Hor, Kenya Colony, July 2, 1912.
14 males, 8 females, Indunumara Mountains, Kenya Colony, July 15, 1912.

Some years ago[13] I separated the birds of southern Kenya Colony and northern Tanganyika Territory under the name *candida*, on the basis of the somewhat browner coloration of the back and the heavier black bars below and stripes above, than in *alexanderi*. Van Someren[14] noted the same differences in his south Kenyan birds. Sclater,[15] however, considers *candida* as a synonym of *alexanderi*. I have seen much material since 1926 and have come to the conclusion that *candida* is a very poorly marked race, and I therefore follow Sclater in sinking the name into synonymy.

When in captivity these birds frequently become very dark brownish, especially on the underparts. This color phase was described by Sharpe[16] as *A. marginalis*, but it is not a species or even a racial form. It is of interest, however, inasmuch as it carries to a much greater degree the incipient tendency toward brownishness shown by "*candida*." However, birds from all parts of the range of the species, when kept in captivity, are equally apt to produce the *marginalis* type of coloration.

According to Sclater, the nominate form ranges east to Lake Rudolf, while *alexanderi* is said to occur from Eritrea south to north-central Tanganyika Territory. Neumann[17] writes that intermediates between *fasciata* and *alexanderi* occur in parts of western Ethiopia and between the White Nile and Lake Rudolf. This has led to a wonder whether the birds from Hor and the Indunumara Mountains might be also such intermediates, but a critical examination of the material reveals them as typical *alexanderi*. The latter form differs from the nominate race in having the upperparts more heavily and abundantly marked with blackish bars, and in being smaller, with a small bill.

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[13] Occ. Papers Boston Soc. Nat. Hist., vol. 5, p. 218, 1926.

[14] Nov. Zool., vol. 29, p. 146, 1922.

[15] Systema avium Æthiopicarum, pt. 2, p. 782, 1930.

[16] Catalogue of the birds of the British Museum, vol. 13, p. 290, 1890.

[17] Bull. Brit. Orn. Club. vol. 23, p. 44, 1908.

The present specimens exhibit a good deal of variation in size. Thus, the males have the following dimensions: Wing, 61–72 (average, 65.2); tail, 36–42 (38.5); culmen, 9–11 (10.4); tarsus, 13.5–15 (14.4 mm). Females: Wing, 62.5–67 (64.4); tail, 35–38.5 (36.9); culmen, 10–11 (10.1); tarsus, 13–16.5 (14.3 mm). The majority of the specimens are in fairly fresh plumage.

The cut-throat finch is a permanent resident in the semiarid thornbush country throughout its range. It is a bird of the lower altitudes and is much given to going about in loose flocks, often in company with other weavers.

In Eritrea the breeding season is in summer and early in autumn, according to Zedlitz.[18] In the adjacent parts of the Sudan it is said to nest in August and in early September, in the latter part of which month the birds flock in good numbers. Erlanger[19] found a nest with three eggs at Sarigo, in southern Somaliland, on May 9, an unusually early date, compared with Eritrean and Sudanese observations, and one that is difficult to comprehend. In Darfur, for example, Lynes[20] found that the typical race breeds in autumn and midwinter. In Kenya Colony it has been found in large swarms (a good sign of nonbreeding activity) in March, April, and July. Thus, in the Indunumara Mountains, July 14–18, Mearns observed over 1,000 of these weavers. Donaldson Smith found the species breeding in August in Somaliland.

HYPARGOS NIVEOGUTTATUS (Peters)

Spermophaga niveoguttata PETERS, Journ. für Orn., 1868, p. 133: Inhambane.

SPECIMENS COLLECTED: 1 male, Meru Forest, Kenya Colony, August 10, 1912.

This specimen is the type of *macrospilotus* Mearns.[21] I have seen birds from Mozambique, Gazaland, Nyasaland, Tanganyika Territory, and Kenya Colony, and find that *macrospilotus* is identical with *niveoguttatus.*

The present example is in fairly fresh plumage and has the following dimensions: Wing, 57.5; tail, 54; culmen, 13.5; tarsus, 17 mm.

Very little appears to be known of the habits of this little twinspot, except that it lives in thickets and dense undergrowth, where it feeds largely on the ground. In Nyasaland, Belcher[22] found it "living usually in wet shaded gullies and * * * attracting little notice." He records this species as a "winter" breeder, like the Pytilias; he found a nest at Zomba on May 6.

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[18] Journ. für Orn., 1911, p. 24.

[19] Journ. für Orn., 1907, p. 17.

[20] Ibis, 1924, p. 673.

[21] Smithsonian Misc. Coll., vol. 61, no. 14, p. 2, 1913.

[22] Birds of Nyasaland, p. 328, 1930.

According to Sjöstedt,[23] this bird lives in the acacia and bush veldt and in the lower cultivated zone on Kilimanjaro, where it is not common, being seen only occasionally.

The present specimen appears to constitute the northwesternmost record for the species. Sclater[24] writes that it inhabits only the coastal districts of Kenya Colony.

PYTILIA AFRA (Gmelin)

Fringilla afra Gmelin, Systema naturae, vol. 1, pt. 2, p. 905, 1789: Angola.

Specimens collected:

1 male, Dire Daoua, Ethiopia, October 17, 1911.
2 males, 1 female, Bodessa, Ethiopia, May 25–27, 1912.

Soft parts: Bill red, shading to black at the base above in the female (all red in the male); feet and claws brown.

I have not enough pertinent material to decide upon the merits of *cinereigula* Cabanis, and therefore I follow Sclater[25] in recognizing no races of *P. afra*. Van Someren[26] calls coastal Kenyan birds *P. afra griseigularis* Neumann, a name probably intended to read *P. a. cinereigula* Cabanis. According to van Someren, the coastal race is a valid one, and ranges inland to Voi. He suggests that the birds of the Kikuyu country may prove to be an undescribed subspecies being larger and more greenish on the back and more greenish yellow on the breast than the coastal ones. I have compared birds from Ethiopia, Kenya Colony, Tanganyika Territory, and Nyasaland, and find no worth-while differences between any two of them.

The yellow-backed pytilia occurs from the Sudanese—Ugandan border and southern Ethiopia south to Nyasaland and central Mozambique, thence west through the Katanga and Northern Rhodesia to northern Angola and the Portuguese Congo.

The present specimens are in somewhat abraded condition; their dimensions are as follows: Males—wing, 58–60.5; tail, 33.5–36.5; culmen, 9–11; tarsus, 13.5–15 mm. Females—wing, 60.5; tail, 34; culmen, 10; tarsus, 15 mm.

Dire Daoua appears to be the northernmost locality from which this species has been recorded. Lovat collected it at Feyambiro and Lake Chercher.[27] Feyambiro is southeast of Harrar, and is the nearest locality record to the present one from Dire Daoua.

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[23] Wissenschaftliche Ergebnisse der schwedischen zoologischen Expedition nach dem Kilimandjaro . . . Deutsch-Ostafrika, etc., Vögel, p. 128, 1908.

[24] Systema avium Æthiopicarum, pt. 2, p. 785, 1930.

[25] Systema avium Æthiopicarum, pt. 2, p. 787, 1930.

[26] Nov. Zool., vol. 29, p. 162, 1922.

[27] Published on by Ogilvie-Grant, Ibis, 1900, p. 129.

Erlanger[28] obtained a young bird in Arussi-Gallaland; Zaphiro[29] collected three specimens at Konso near the Sagon River in southern Shoa. If there are other Ethiopian records, I have not come across them. I know of none from Somaliland or Jubaland.

Nothing appears to be known of the breeding season in Ethiopia; in north-central Tanganyika Territory, Loveridge[30] found a nest with eggs on March 23.

Mearns noted that the male and female collected at Bodessa on May 25 were a mated pair.

PYTILIA MELBA SOUDANENSIS (Sharpe)

Zonogastris soudanensis SHARPE, Catalogue of the birds in the British Museum, vol. 13, p. 298, 1890: Type in British Museum said to be from Khartoum, but probably from the Upper White Nile.

SPECIMENS COLLECTED:

3 adult males, 2 adult females, Dire Daoua, Ethiopia, December 1–16, 1911.
1 adult male, Iron Bridge, Hawash River, Ethiopia, February 4, 1912.
1 adult male, Reishat, north Lake Rudolf, Kenya Colony, May 25, 1912.
1 adult male, Sagon River, Ethiopia, June 5, 1912.
1 adult female, 18 miles southwest of Hor, Kenya Colony, July 2, 1912.
1 adult male, Endoto Mountains, Kenya Colony, July 23, 1912.
2 adult males, Tharaka district, Kenya Colony, August 12, 1912.
1 adult male, 1 juvenal male, 2 adult females, 1 juvenal female, Tana River, Kenya Colony, August 15–17, 1912.

Soft parts: Iris orange-red; bill red with a dark brown spot at base of maxilla; feet and claws grayish brown.

In the absence of sufficiently large series, I follow Sclater[31] in considering *affinis* and *kirki* as synonyms of *soudanensis.* The bird from Sagon River was compared with the type of *affinis* and found identical, and it bears out the characters by which this form is said to differ from *soudanensis.* It has darker, more sharply delineated bars on the underparts, a greener color on the back, and has the under tail coverts more distinctly barred than Hawash birds. However, in the last character, that of the under tail coverts, there is some variation in *soudanensis*, some individuals having these feathers nearly plain white with almost no bars, while others are definitely barred.

The case of *kirki* seems to be one of individual variation. The best character here is the color of the lores in adult males. In *kirki* the lores are grayish separating the red areas above and below, while in *soudanensis* the red extends across the lores. If we group the present birds according to this criterion, we find no correlation between it and geography. Thus, birds with gray lores come from Dire Daoua,

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[28] Journ. für Orn., 1907, p. 17.
[29] Ogilvie-Grant, Ibis, 1913, p. 569.
[30] Proc. Zool. Soc. London, 1923, p. 903.
[31] Systema avium Æthiopicarum, pt. 2, p. 788, 1930.

Tharaka district, and Tana River; males with reddish lores from Hawash River, Reishat, Sagon River, and Endoto Mountains. Offhand this suggests that possibly a gray-lored form may occur in Ethiopian Somaliland south to Lamu and thence inland along the Tana River, but the red-lored bird from the Hawash River, and the fact that the type of *affinis* (from Hersi Barri, Ogaden) has reddish lores renders this unlikely. Zedlitz[32] has studied this form and recognizes it as the resident race of the Somali districts, northern and eastern Kenya Colony, from Ogaden, the Ginir, Garre-Lewin, and Gurra countries, to the Northern Guaso Nyiro River. He mentions two specimens from the Rendile area but writes that as they are females and do not show the characters of the race, their identification must be considered unsatisfactory. The present males from Sagon River, Reishat, and Endoto Mountains show that the Rendile birds are not *affinis.*

Two of the birds have the lores mixed gray and red and suggest that the gray- and red-lored birds are not specifically distinct.

All the Ethiopian birds (and also the one from Reishat) have the under tail coverts barred more or less distinctly; all the Kenyan birds (from 18 miles southwest of Hor southward into Tanganyika Territory) have these feathers entirely unbarred. It may be possible to recognize a southern form on this basis, but as I have seen no topotypical *kirki* material, I can not say whether that name is available. Lynes[33] considers *kirki* a synonym of *soudanensis*, and writes that the reason for this is that "although the type loc. of *P. m. soudanensis* is unknown, its type-specimen agrees almost exactly with that of *P. m. kirki;* and since the original descriptions of both also apply to either bird * * * the older name of the two ought to be used."

The inconstancy of the loral character makes one suspicious of *P. percivali* van Someren.[34] This name is synonymized with *belli* by Sclater, but here again there is room for discussion. I have seen three birds from Dodoma, Tanganyika Territory, that agree very closely with the description of *percivali*—white lores in the male, dark gray throat and breast in the female. It arouses a wonder if there may not be two specific groups in the melba finches—one with red lores and one with grayish or whitish lores. The former group would include *melba*, *belli*, *jessi*, *kirki*, *percivali*, and *grotei;* the latter would include *citerior*, *soudanensis*, and "*affinis.*" I have not the material wherewith to judge Neunzig's new races *damarensis*, *useguhae*, *centralis*, and *ladoensis.* Grote's form *conradsi* and Reichenow's *tanganjicae* are synonyms of *belli.*

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[32] Journ. für Orn., 1916, pp. 29–35.

[33] Ibis, 1926, p. 400.

[34] Bull. Brit. Orn. Club, vol. 40, p. 56, 1919: Loita Plains, Kenya Colony.

As may be sensed from the foregoing discussion, the taxonomic conclusions to be drawn are rendered somewhat uncertain by the extent of nongeographic variation. For the present I follow Sclater's arrangement but hope that workers with more satisfactory material, and especially residents of eastern Africa, who have a chance to study the birds in life, may consider the problem open for investigation and by no means a settled issue.

The width of the red frontal band varies greatly in the males but is not correlated with locality or wear. Hawash and Dire Daoua specimens are grayer on the back than any others seen. There is a tendency for the birds to be smaller near the Equator and larger to the north, as may be seen from table 78.

As Lynes[35] correctly writes, there is no evidence of any form of the melba finch in northern Ethiopia. The species is a bird of comparatively low altitudes and occurs all around the base of the high plateau regions of northern and north-central Ethiopia, but not high up, Adis Abeba being the highest locality from which it is known.

TABLE 78.—*Measurements of 15 specimens of* Pytilia melba soudanensis

Locality	Sex	Wing	Tail	Culmen	Tarsus
ETHIOPIA:		*Mm*	*Mm*	*Mm*	*Mm*
Dire Daoua	Male	58.0	49.0	12.0	17.0
Do	do	59.0	49.0	13.0	16.0
Do	do	60.0	51.0	12.5	17.0
Hawash River	do	62.0	53.5	12.5	16.0
Sagon River	do	58.0	53.0	13.0	18.0
KENYA COLONY:					
Reishat	do	60.0	51.0	13.0	17.0
Endoto Mountains	do	58.5	48.5	12.5	17.5
Tharaka district	do	55.0	48.0	12.5	16.0
Do	do	58.0	46.0	13.0	16.0
Tana River	do	56.0	47.0	13.0	16.5
ETHIOPIA:					
Dire Daoua	Female	59.0	49.0	12.5	16.5
Do	do	61.0	51.0	12.5	16.5
KENYA COLONY:					
18 miles southwest of Hor	do	56.5	50.0	13.0	16.5
Tana River	do	54.0	45.0	11.0	16.5
Do	do	54.0	45.0	12.0	16.0

The species inhabits bushy and scrub country and is usually seen in small groups or singly. At times larger numbers are observed, as, for example, on the Tana River, August 16–19, when Mearns noted 150 birds.

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[35] Ibis, 1926, pp. 399–400.

Erlanger[36] found this bird in Arussi-Gallaland, southern Italian Somaliland, and Jubaland. He found four nests as follows: A nest with four much incubated eggs at Damaso in Garre-Lewin district, May 14; a nest with six fresh eggs, at Abrona, near Bardera, May 26; another with seven fresh eggs at Sarigo, Garre-Lewin country, May 8; and one with five incubated eggs at Solole, southern Somaliland, June 11. The nests are placed from 1 to 4 meters up in acacia trees and are often built near wasps' nests.

Mearns made no observations on the breeding habits or season, but a study of the molt and plumage condition of his specimens does not fit in very well with a notion of a very limited breeding season, such as Erlanger's May and June nests would seem to indicate. Birds taken in December at Dire Daoua are either in worn plumage or in molt; those taken in February and May (Hawash River and Reishat) are abraded; the Sagon River bird (June 5) is in fresh plumage, as are also the July and August birds from farther south. The two juvenal birds are in worn plumage and show signs of molt.

The juvenal plumage is very different from the adult stage. The head, back, and wings are uniform Saccardo's umber; the tail and upper tail coverts dull reddish as in the adults; the underparts are pale ashy buff, much suffused with pale Saccardo's umber on the chin, throat, breast, sides, flanks, thighs, and under tail coverts; the bill is all black.

Since this paper was first written, van Someren[37] has described another subspecies of this weaver, *P. m. jubaensis*, from Serenli, Jubaland, based on 18 specimens. This form is said to be nearest to *kirki* (which he recognizes), but intergrades toward *belli*.

LAGONOSTICTA RUBRICATA RHODOPAREIA Heuglin

Lagonosticta rhodopareia HEUGLIN, Journ. für Orn., 1868, p. 16: Keren.

SPECIMENS COLLECTED:

8 adult males, 3 adult females, Gato River near Gardula, Ethiopia, April 13–May 14, 1912.
2 adult males, 1 adult female ?, Bodessa, Ethiopia. May 25–29, 1912.
1 adult female, Sagon River, Ethiopia, June 6, 1912.
1 immature "male," Tertale, Ethiopia, June 11, 1912.

Soft parts: Iris brown, eye rim pink; bill plumbeous tipped with black; feet and claws plumbeous.

This is the series on which Mearns based his form *fricki;*[38] one of the males (U.S.N.M. no. 247543) is the type of *fricki*. When describing the latter, Mearns merely wrote that "as pointed out by

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[36] Journ. für Orn., 1907, p. 18.

[37] Nov. Zool., vol. 37, p. 326, 1932.

[38] Smithsonian Misc. Coll., vol. 61, no. 14, p. 4, 1913: Gato River near Gardula.

Ogilvie-Grant * * * *Lagonosticta rubricata rhodopareia* Heuglin, from Keren, in Bogosland, differs in having the top of the head brownish gray without any wash of red—the opposite condition from *hildebrandti*." As a matter of fact, Ogilvie-Grant[39] showed that some birds from the Gessima River, in the Laikipia country of Kenya Colony, are very similar to *rhodopareia*, and he synonymized *hildebrandti* with Heuglin's Bogosland race! The birds named *fricki* by Mearns are intermediates between typical *rhodopareia* and *hildebrandti* (which is a barely recognizable race), but are closer to the northern form. I follow Sclater[40] in calling *fricki* a synonym of *rhodopareia*.

Ogilvie-Grant noted that the color of the upperparts changes a little with wear, freshly plumaged birds being grayer, becoming browner with abrasion.

The Abyssinian fire-finch occurs from Eritrea south across Ethiopia, northern Uganda, the Rendile country, and Mount Uraguess. The birds of the last-named locality are intermediate between *rhodopareia* and *hildebrandti* and are what van Someren has named *umbriventer*.[41]

On the whole these birds are less reddish on the heads than *hildebrandti*, of central and southern Kenya Colony and northern Tanganyika Territory. The latter form occurs from Kaimosi, Mount Kenya, Kikuyu, etc., to Mount Kilimanjaro and the Usambara Mountains.

The present series are partly in very worn, partly in rather fresh plumage. A few signs of molt are visible in a few April birds. The size variations are as follows: Males—wing, 47–51 (average, 49.1); tail, 42–45 (43.6); culmen, 10–11 (10.1); tarsus, 13–14.5 (13.6 mm). Females—wing, 48–50 (48.8); tail, 40.5–45 (42.8); culmen, 10 each; tarsus, 13–14.5 (13.4 mm).

This fire-finch has been taken in only a few places in Ethiopia, where it appears to be unknown in the highlands. Erlanger[42] met with it between Harrar and Adis Abeba.

According to Mearns, a mated pair was collected on April 22; the female had a fairly large egg nearly ready to be laid.

Mearns noted this bird on the following occasions: Gato River near Gardula, March 29–May 17, 200; Anole village May 18, 2 seen; Kormali village, May 19, 10 birds; Bodessa, May 19–June 3, 50; Sagon River, June 3–6, 30 noted; Tertale, June 7-12, 20 birds; El Ade, June 12–13, 20 birds seen.

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[39] Ibis, 1908, pp. 272–273.

[40] Systema avium Æthiopicarum, pt. 2, p. 789, 1930.

[41] Bull. Brit. Orn. Club, vol. 40, p. 54, 1919: Embu.

[42] Journ. für Orn., 1907, p. 21.

LAGONOSTICTA SENEGALA BRUNNEICEPS Sharpe

FIGURE 29

Lagonosticta brunneiceps SHARPE, Catalogue of the birds in the British Museum, vol. 13, p. 277, 1890: Type in British Museum from Maragaz, Eritrea.

SPECIMENS COLLECTED:

1 male, 1 female, Dire Daoua, Ethiopia, October 15, 1911 (male) (female undated).
1 male, Duletcha, Ethiopia, January 24, 1912.
1 male, 1 female, Sadi Malka, Ethiopia, January 28, 1912.
4 males, 2 females, Hawash River, Ethiopia, February 7–10, 1912.

In northeastern Africa there are five forms of the red-billed firefinch, as follows:

1. *L. s. brunneiceps:* Eritrea and most of Ethiopia (except the highlands, and southern Shoa), westward in the Sudan to Kordofan and Darfur. I have no Eritrean birds for study, and so I follow Sclater in considering *erythreae* and *carlo* as synonyms.
2. *L. s. abayensis:* The southern Shoan Lakes area.
3. *L. s. somaliensis:* Southern Somaliland, Jubaland, the coastal areas of Kenya Colony south to northeastern Tanganyika Territory (to Kilosa) and inland in northern Kenya Colony to the Northern Guaso Nyiro River.
4. *L. s. kikuyuensis:* The inland plateau of central and western Kenya Colony.
5. *L. s. ruberrima:* Uganda, the eastern Ituri district of the Belgian Congo, Ruanda, Urundi, and northwestern Tanganyika Territory.

These forms may be distinguished by the following key (based on males):

a^1. Upper back brown with no or little reddish wash -------------- brunneiceps
a^2. Upper back brownish with a definite reddish wash.
  b^1. Back light brown, washed with red.
    c^1. Under tail coverts grayish brown -------------------------- somaliensis
    c^2. Under tail coverts deeper brown, with a yellowish tinge ----- abayensis
  b^2. Back dark brown, washed with red --------- kikuyuensis and ruberrima[43]

The differences between some of these races are rather slight and are not so great as the blunt wording of the key would indicate.

Zedlitz[44] has reviewed the races of this bird and recognizes *erythreae* and *carlo* and suggests that *incerta* is possibly still another form. I have examined the type of *incerta* and agree with Sclater[45] that it has nothing to do with *L. senegala*, but it is a race of *L. rufopicta*, a synonym of *L. rufopicta lateritia*.

The specimens collected are in worn plumage. Their size variations are as follows: Males—wing, 50–52 (average, 51.1); tail, 39–41

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[43] These last two may be distinguished only in the females, which are darker, browner in *ruberrima*, and paler, grayer, in *kikuyuensis*.

[44] Orn. Monatsb. vol. 18, pp. 171–174, 1910.

[45] Systema avium Æthiopicarum, pt. 2, p. 792, 1930.

(40); culmen, 9–10 (9.8); tarsus, 12.5–13 (12.9 mm). Females—wing, 47–50 (49); tail, 37.5–39 (38.1); culmen, 9–9.5 (9.1); tarsus, 11.5–13.5 (12.2 mm).

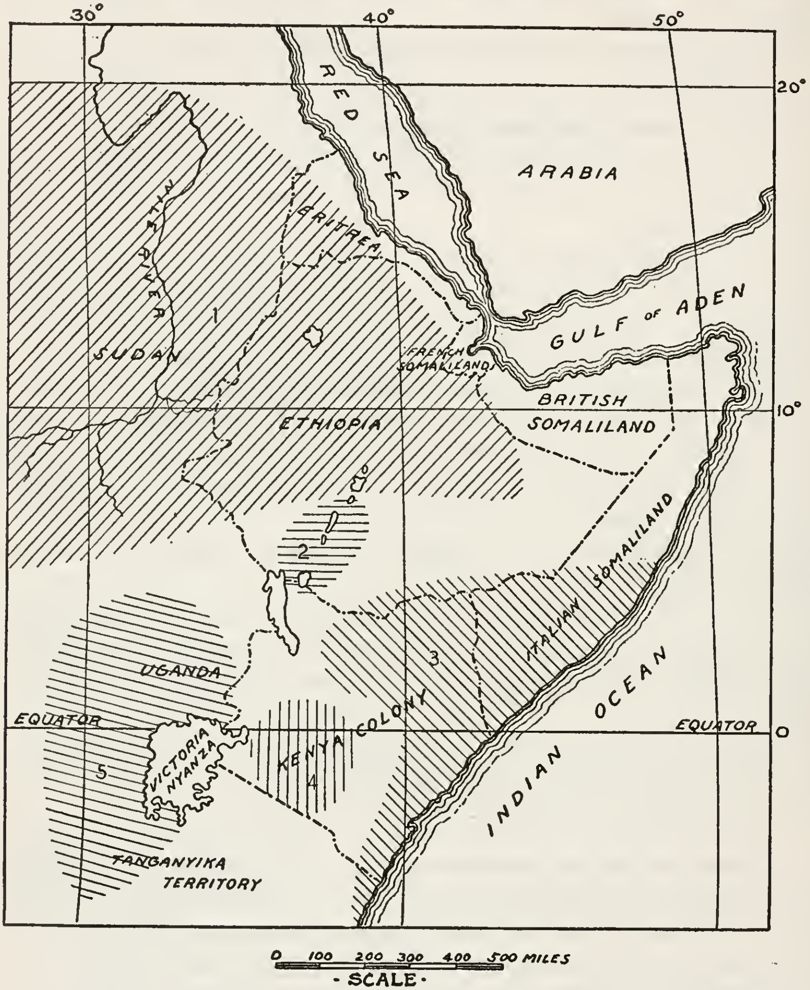
30°
40°
50°
20°
10°
0
RED SEA
ARABIA
ERITREA
RIVER NILE
SUDAN
1
FRENCH SOMALILAND
GULF OF ADEN
BRITISH SOMALILAND
ETHIOPIA
2
ITALIAN SOMALILAND
UGANDA
3
KENYA COLONY
INDIAN OCEAN
EQUATOR
EQUATOR
5
4
VICTORIA NYANZA
TANGANYIKA TERRITORY
0 100 200 300 400 500 MILES
• SCALE •

FIGURE 29.—Distribution of *Lagonosticta senegala* in northeastern Africa.

1. *L. s. brunneiceps.*
2. *L. s. abayensis.*
3. *L. s. somaliensis.*
4. *L. s. kikuyuensis.*
5. *L. s. ruberrima.*

The Abyssinian red-billed fire-finch has been collected and obtained in various parts of northern, central, and south-central Ethiopia by numerous individuals, as Blanford, Harris, Antinori, Ragazzi, Zedlitz, Zaphiro and Erlanger. Shelley[46] has summarized the then-existing data, which indicate nothing as to the breeding season in Ethiopia itself other than Heuglin's statement that in the warmer (that is, lower) parts of Ethiopia and the White Nile the birds assume full plumage in July and August when they commence nesting. It is quite probable that the birds breed over a fairly prolonged period. In Darfur, Lynes[47] recorded them as breeding in the winter. In Uganda the race *ruberrima* nests in every month of the year.

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[46] The birds of Africa, vol. 4, p. 259, 1905.

LAGONOSTICTA SENEGALA ABAYENSIS Neumann

Figure 29

Lagonosticta senegala abayensis Neumann, Journ. für Orn., 1905, p. 349: Giditscho Island in Lake Abaya.

Specimens collected:

1 male, near Gardula, Ethiopia, March 28, 1912.
12 males, 1 female, Gato River near Gardula, Ethiopia, April 3–May 9, 1912.

Soft parts: Iris reddish brown, eyelid yellow; bill red with blue-black line above and below (in female the black line on the maxilla is broader than in the male); feet and claws dark purplish brown.

The Abaya red-billed fire-finch is confined to a small area in southern Shoa from a little north of the Abaya Lakes to the Gato River and Tertale. It is only slightly different from *brunneiceps*, having a little reddish wash on the back.

The present specimens are in somewhat worn plumage. Their dimensional variations are as follows: Males—wing, 47–50.5 (average, 48.8); tail 31–38 (36); culmen, 9–11 (10.4); tarsus, 11–13 (12.6 mm). Female—wing, 48; tail 34.5; culmen, 9; tarsus, 12 mm.

Besides the actual specimens collected, Mearns noted this bird as follows; Aletta, March 7–13, 25 seen; Loco, March 13–15, 10 birds; Gidabo River, March 15–17, 10 noted; Abaya Lakes, March 18–26, 35; between Abaya Lakes and Gardula, March 26–29, 10 birds; Gato River near Gardula, March 29–May 17, 200; Anole village, May 17, 20 birds; Tertale, June 7, 4.

Nothing has been recorded of the habits of this race.

LAGONOSTICTA SENEGALA KIKUYUENSIS van Someren

Figure 29

Lagonosticta senegalla kikuyuensis van Someren, Bull. Brit. Orn. Club, vol. 40, p. 55, 1919: Nairobi.

Specimens collected:

1 immature male, 2 adult females, Tharaka district, Kenya Colony, August 12–13, 1912.
2 adult males, Tana River, Kenya Colony, August 23–25, 1912.
1 adult male, 2 adult females, Escarpment, Kenya Colony, September 6–7, 1912.

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[47] Ibis, 1924, p. 671.

The birds from the Tana River are somewhat intermediate between *kikuyuensis* and *somaliensis.*

The Tana River birds show slight signs of ecdysis; the others are in fairly fresh plumage. The size variations are as follows: Males—wing, 48–50 (average, 49); tail, 36–38 (37); culmen, 9–10 (9.7); tarsus, 12.5–13.5 (13 mm). Females—wing, 46–48 (47.5); tail, 33.5–35.5 (34.5); culmen, 9–9.5 (9.1); tarsus, 12–13 (12.5 mm).

The Kikuyu red-billed fire-finch is a common bird throughout its range and often builds its nest in the thatched roofs of native huts. Its nests have been taken throughout the year.

Mearns noted 100 of these birds at the junction of the Tana and Thika Rivers, August 23–26; at Bowlder Hill, August 27, he saw 25; on the Thika River west of Ithanga Hills, August 28, 10 birds; between the Thika and Athi Rivers, August 29, 20 birds; Athi River near Juja Farm, August 30–31, 5 were seen; Escarpment, September 4–13, 200 birds.

COCCOPYGIA MELANOTIS QUARTINIA (Bonaparte)

Estrelda quartinia Bonaparte, Conspectus generum avium, vol. 1, p. 461, 1850: Abyssinia.

Specimens collected:

1 adult male, Ethiopia, March 2, 1912.
2 adult males, 1 adult female, Botola, Sidamo, Ethiopia, March 5, 1912.
1 adult female, Aletta, Ethiopia, March 11, 1912.
1 immature male, Loco, Ethiopia, March 13, 1912.

The yellow-bellied waxbill occurs throughout eastern and southern Africa. In the regions traversed by the Frick expedition two forms are found, *quartinia*, of Ethiopia, and *kilimensis*, of Kenya Colony south to Nyasaland and Gazaland. The latter race (which occurs north as far as Mount Lololokui) is slightly darker, the breast less sulphur-yellow, more tinged with orange-buffy than the former.

The Abyssinian race occurs from the Eritrean border south to Harrar, Arussi-Gallaland, and southern Shoa, but it is probably somewhat local, as several collectors failed to find it. Shelley[48] has summarized the data available to him, and all that has been added since then are the records of Erlanger, Zaphiro, and Mearns. The first named[49] found the species in Arussi-Gallaland and at Adis Abeba. He found a nest with six much incubated eggs at Adis Abeba on October 8. Zaphiro[50] added a few locality records—the Managasha Forest, Uraguessa and Gamu in the Charada Forest, Kaffa, and Kullo. Mearns's birds, listed above, constitute the most southern Shoan records for the race.

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[48] The birds of Africa, vol. 4, p. 237, 1905.

[49] Journ. für Orn., 1907, pp. 21–22.

[50] See Ogilvie-Grant, Ibis, 1913, p. 569.

Incidentally, *kilimensis* occurs farther north than is indicated by Sclater.[51] I have seen specimens from Mount Lololokui in northern Kenya Colony, which are clearly of that race and not *quartinia*.

The present specimens are in fairly fresh plumage. Their dimensions are as follows: Males—wing, 47–48; tail, 37–39; culmen, 8–8.5; tarsus, 13–14 mm. Females—wing, 45–46; tail, 39–40; culmen, 8; tarsus, 13–13.5 mm.

ESTRILDA ASTRILD MINOR (Cabanis)

Figure 30

Habropyga minor Cabanis, Journ. für Orn., 1878, p. 229: Voi River, Kenya Colony.

Specimens collected: 1 male, Tana River, Kenya Colony, August 17, 1912.

In the general region of interest to us in this study, five races of the common waxbill occur, as follows:

1. *E. a. minor:* The coastal and subcoastal portions of eastern Africa from southern Somaliland south through Kenya Colony and the northern half of eastern Tanganyika Territory.
2. *E. a. massaica:* The inland areas of the southern half of Kenya Colony.
3. *E. a. nyanzae:* Uganda and adjacent parts of Kenya Colony, Ruanda, Urundi, the eastern Belgian Congo, and northeastern Tanganyika Territory.
4. *E. a. macmillani:* The upper White Nile and the Sobat-Baro district of the Anglo-Egyptian Sudan.
5. *E. a. peasei:* The highlands of Ethiopia.

Two fairly recent reviewers of the races of this bird[52] agree that *massaica* is not distinct from *minor*, but I find that it is a recognizable, though poorly marked, race. Granvik[53] has reviewed some of the pertinent literature and has found, as I have now, that the difference between *massaica* and *minor* is not one of size, as Neumann stated in his original description of the former, but of coloration. The cheeks and chin are purer white in *minor* than in *massaica*, which form has these parts lightly tinged with grayish.

The Uganda race *nyanzae* is distinguished by the more grayish-brown, less rufous-brown back, fairly white chin, and the less distinct bars on the breast. The Sudanese form *macmillani* is smaller (wing, 43–45 mm) and has the underparts a richer pink with the barring becoming obsolete on the breast; chin whitish. The Ethiopian *peasei* is the largest of all the races (wings, 50 mm) and has less pink on the venter and the barring still more obsolete than in *peasei.* All the forms are based on average characters, but, on the whole, they appear to be valid.

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[51] Systema avium Æthiopicarum. pt. 2, p. 794, 1930.

[52] Zedlitz, Journ. für Orn., 1916, p. 36; and Sclater and Mackworth-Praed, Ibis, 1918, pp. 442–444.

[53] Journ. für Orn., 1923, Sonderheft, p. 175.

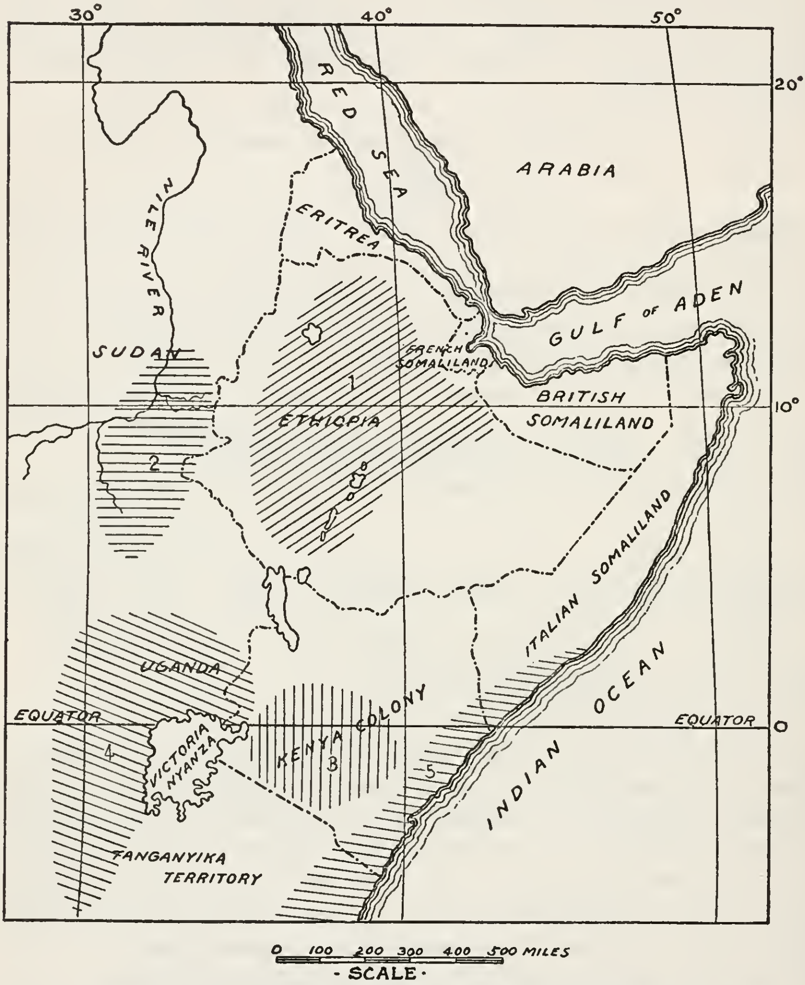
30°
40°
50°
20°
10°
0
RED SEA
ARABIA
NILE RIVER
ERITREA
GULF OF ADEN
FRENCH SOMALILAND
SUDAN
1
BRITISH SOMALILAND
ETHIOPIA
2
ITALIAN SOMALILAND
UGANDA
KENYA COLONY
OCEAN
EQUATOR
EQUATOR
VICTORIA NYANZA
4
3
5
INDIAN
TANGANYIKA TERRITORY
0 100 200 300 400 500 MILES
· SCALE ·

FIGURE 30.—Distribution of *Estrilda astrild* in northeastern Africa.

1. *E. a. peasei.*
2. *E. a. macmillani.*
3. *E. a. massaica.*
4. *E. a. nyanzae.*
5. *E. a. minor.*

The single specimen of *minor* obtained by the expedition is in somewhat worn plumage. Its dimensions are as follows: Wing, 45; tail, 47; culmen, 8.5; tarsus, 14 mm. It is not wholly typical of *minor* but slightly intermediate between it and *massaica.*

Mearns saw about 100 of these waxbills along the Tana River, August 17–26.

ESTRILDA ASTRILD PEASEI Shelley

FIGURE 30

Estrilda peasei SHELLEY, Bull. Brit. Orn. Club, vol. 13, p. 75, 1903: Jaffi Dunsa, Ethiopia.

SPECIMENS COLLECTED:

1 male, Arussi Plateau, Ethiopia, February 27, 1912.
1 male, 1 female, Aletta, Ethiopia, March 11, 1912.

The Abyssinian waxbill inhabits the highlands of Ethiopia from the northern Hawash area and northern Shoa to Arussi–Gallaland. It is the largest and deepest pinkish of all the forms of the common waxbill.

The present specimens are in fairly fresh plumage. Their measurements are as follows: Males—wing, 50, 50.5; tail, 50, 52; culmen, 9, 9.5; tarsus, 14, 15 mm. Female—wing, 49; tail, 48; culmen, 8; tarsus, 14 mm, respectively. The February bird is in molt.

Heuglin[54] found this bird up to 6,000 and 7,000 feet above the sea, but he assumed that they did not breed at such altitudes. Pease and Lovat both obtained specimens but did not record much as to the habits of the bird. Erlanger[55] found a nest with five fresh eggs on May 9 at Cunni, and another on June 9 at Arba in the Danakil Steppes.

Mearns noted this waxbill as follows: Aletta, March 7–13, 50 seen; Loco, March 13–15, 50; Abaya Lakes, March 18–26, 800; spring between Abaya Lakes and Gardula, March 26–29, 200 birds.

ESTRILDA RHODOPYGA RHODOPYGA Sundevall

Estrilda rhodopyga rhodopyga SUNDEVALL, Öfv. Svenska Vet.-Akad. Förh., vol. 7, p. 126, 1850: Northeastern Africa; Sennar (see Shelley, The birds of Africa, vol. 4, p. 206, 1905).

SPECIMENS COLLECTED: 2 males, 1 female, Sadi Malka, Ethiopia, January 28, 1912.

There are two races of the crimson-rumped waxbill—the nominate form, of northeastern Africa from Kordofan and Sennar east across most of Ethiopia to western Somaliland, and *centralis*, of the area from the Upper White Nile district of the Sudan, Uganda, and southern Shoa, south through Kenya Colony to Ugogo in Tanganyika Territory and to the Kivu district in the eastern Belgian Congo.

Sclater[56] considers *E. r. polia* Mearns[57] a synonym of *rhodopyga*, but I find, on examining the type, that it really is identical with *centralis*, as is also *hypochra* Mearns. The two races are not too well differentiated at best, and to recognize more forms is merely making matters more difficult. Van Someren[58] writes that he can not recognize "more than one race for Uganda, South Ethiopia, Somaliland, and East Africa. I can pick out birds which agree with the characters of the various races claimed, but such are not limited to specimens from the distribution of these supposed forms, and similar birds are to be found from all the localities." He calls attention to the fact that there is much variation in plumage correlated with age. Young birds in the juvenal dress are little or not at all barred; vigorous, full plumaged adults are most distinctly barred and are generally darker below.

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[54] Ornithologie Nordost-Afrika's, etc., vol. 1, p. 604, 1869.

[55] Journ. für Orn., 1907, p. 20.

[56] Systema avium Æthiopicarum, pt. 2, p. 797, 1930.

[57] Smithsonian Misc. Coll., vol. 61, no. 9, p. 1, 1913: Gato River, southern Abyssinia.

The present specimens are somewhat abraded. The female is more grayish, less brownish, on the crown and occiput than the males. The dimensions of these birds are as follows: Males—wing, 46, 46; tail, 43, 45; culmen, 9.6, 10; tarsus, 12.5, 13 mm. Female—Wing, 47; tail, 42; culmen, 9.2; tarsus, 12.8 mm.

Shelley[59] has summarized what was known of this bird at the time. Since then but little has been added other than Zedlitz's notes.[60] This investigator writes that it is an inhabitant of the middle altitudes, up to, but not much beyond, 1,200 meters. It was not met with in the low hot Barca district. He found a breeding bird at Ghinda in the Eritrean coastal belt on January 31 and suggests that the breeding season there is during the local spring, but that on the other side of the eastern Ethiopian watershed, the season is late in summer! This, however, remains to be demonstrated. At Khartoum, birds apparently in breeding condition were taken in the first half of November by Butler.

ESTRILDA RHODOPYGA CENTRALIS Kothe

Estrilda rhodopyga centralis Kothe, Orn. Monatsb., vol. 19, p. 70, 1911: Kisenyi, Lake Kivu (not Lake Albert Edward, as stated by Kothe).

Specimens collected: 1 male, Gato River near Gardula, Ethiopia, May 2, 1912.

Soft parts: Bill black above and below, red on sides.

This specimen is the type of *E. r. polia* Mearns. Aside from van Someren's reference to south Ethiopian examples,[61] this is the only Ethiopian record I know of.

The specimen is in worn plumage; its dimensions are as follows: Wing, 46; tail, 45; culmen, 10; tarsus, 12.5 mm.

ESTRILDA PALUDICOLA OCHROGASTER Salvadori

Estrilda ochrogaster Salvadori, Boll. Zool. Anat. Torino, vol. 12, no. 287, p. 4, 1897: Abyssinia.

Specimens collected: 1 male, Gato River near Gardula, Ethiopia, March 30, 1912.

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[58] Nov. Zool., vol. 29, pp. 165–166, 1922.

[59] The birds of Africa, vol. 4, pp. 206–207, 1905.

[60] Journ. für Orn., 1911, pp. 26–27.

[61] Nov. Zool., vol. 29, p. 165, 1922.

Sporaeginthus margaritae Weld-Blundell and Lovat[62] is a synonym.

The Abyssinian fawn-breasted waxbill is a little-known, local, and apparently rather scarce bird.

The present specimen appears to be the southernmost one yet recorded. Previously the bird was not known from farther south than Gofa, where Zaphiro shot three specimens.[63] Before that it had been found on the Baro River by Zaphiro[64] and on the Maki River by Erlanger.[65] Lovat[66] met with a flock of nearly 100 birds at Gelongol. According to Zedlitz,[67] it is apparently entirely restricted to the highlands of the Tigre district, whence he lists a specimen taken by Müller at Adua, but it is a rarity as far as collections indicate.

The colored figure of "*margaritae*" given by Ogilvie-Grant[68] is much brighter colored than the present example, being darker brown above and deeper orange below. The bill is represented as being red, but the color in the dried specimen is light yellowish. It may be that Mearns's bird was not fully adult. Shelley,[69] however, remarks that the under tail coverts and upper breast are too brightly colored in the plate.

The dimensions of the present specimen are: Wing, 49; tail, 47; culmen, 9; tarsus, 14 mm.

Nothing appears to be known of the habits of this waxbill.

ESTRILDA CHARMOSYNA CHARMOSYNA (Reichenow)

Habropyga charmosyna Reichenow, Orn. Centralb., 1881, p. 78: Berdera, on the Juba River, Italian Somaliland.

Specimens collected:

5 males, Dire Daoua, Ethiopia, December 6–22, 1911.
1 male, 1 female, Gato River near Gardula, Ethiopia, April 23–May 13, 1912.
1 male, Turturo, Ethiopia, June 15, 1912.
2 males, 1 female, 25 miles south of Lake Rudolf, Kenya Colony, July 12, 1912.
4 males, Indunumara Mountains, Kenya Colony, July 14, 1912.
1 male, Endoto Mountains, Kenya Colony, July 20, 1912.
1 male, 24 miles south of Malele, Kenya Colony, July 29, 1912.
1 female, Tana River, Kenya Colony, August 16, 1912.

Soft parts: Bill blue, tipped with black; feet and claws plumbeous black.

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[62] Bull. Brit. Orn. Club, vol. 10, p. 20, 1899: Gelongol.
[63] Ogilvie-Grant, Ibis, 1913, pp. 571–572.
[64] Ibis, 1907, p. 583.
[65] Journ. für Orn., 1907, p. 21.
[66] Ibis, 1900, p. 130.
[67] Journ. für Orn., 1911, p. 27.
[68] Ibis, 1900, pl. 3, fig. 1.
[69] The birds of Africa, vol. 4, pp. 217–218, 1905.

Sclater[70] considers *pallidior* Jackson[71] and *nigrimentum* Salvadori[72] as synonyms of *charmosyna*. Van Someren[73] recognizes *pallidior*. If this form were valid the present specimens from south of Malele and from the Tana River would, on geographic grounds, have to be called by Jackson's name, but they are matched very closely by specimens from southern Ethiopia. It seems, therefore, that Sclater's conclusion is the correct one. Lönnberg[74] recorded specimens from the Northern Guaso Nyiro River as *E. charmosyna* and did not mention *pallidior*.

This species and *E. erythronotos* are very closely allied and would undoubtedly be considered one specific group were it not for the fact that the two occur together in southern Kenya Colony and northern Tanganyika Territory.

There are two races of the red-rumped waxbill—the typical one, of the southern half of Ethiopia, Somaliland, and Turkanaland, south to the Northern Guaso Nyiro River and the eastern portions of the Tana River; and *kiwanukae* van Someren, of southern Kenya Colony from the Loita Plains and the Taveta area south to Dodoma in north-central Tanganyika Territory. The latter form has the underparts, especially the abdomen, darker, more grayish, and the light bars on the wings more whitish, than in the nominate race.

The specimens taken in December, April, and May are in worn plumage; the July birds are partly in worn, partly in fresh feathering; a male taken on July 29 and a female, August 16, show signs of molt in the tail. The size variations of the present series are as follows: Males—wing, 49–53.5 (average, 51.2); tail, 53–61 (57.6); culmen, 8.5–10 (8.8); tarsus, 12.5–14 (13.1 mm). Females—wing, 49–52.5 (50.8); tail, 54–55 (54.3); culmen, 8.5–9 (8.8); tarsus, 13–14 (13.5 mm).

Shelley[75] has summarized most of what is known of this bird, which is little indeed. Since then, Ogilvie-Grant[76] has recorded it from Lake Zwai and from Lake Rudolf and writes that it "appears to be a rare bird and is seldom procured." The present specimens extend the known range southward a good distance and nearly double the number of specimens on record. The bird seems to be more numerous in northern Kenya Colony than in Ethiopia. Mearns made the following entries concerning it in his notebooks: Anole,

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[70] Systema avium Æthiopicarum, pt. 2, p. 802, 1930.

[71] Bull. Brit. Orn. Club, vol. 27, p. 6, 1910: Northern Guaso Nyiro River.

[72] Ann. Mus. Civ. Genova, vol. 26, p. 281, 1888: Farre, Shoa.

[73] Nov. Zool., vol. 29, p. 164, 1922; and Journ. East Africa and Uganda Nat. Hist. Soc., no. 35, p. 59 (135), 1930.

[74] Kongl. Svenska Vet.-Akad. Handl., 1911, p. 106.

[75] The birds of Africa, vol. 4, pp. 232–233, 1905.

[76] Ibis, 1913, p. 571.

June 17, 2 birds seen; Wobok, June 18, 2; 10 to 25 miles southeast of Lake Rudolf, July 12, 30 seen; Nyero Mountains, south of Lake Rudolf, July 13, 4 birds; Indunumara Mountains, July 14–18, several; Endoto Mountains, July 19–24, 30 birds; Er-re-re, July 25, 10 seen; 24 miles south of Malele, July 29, 2 noted; 25 miles north of Northern Guaso Nyiro River, July 30, 10 seen; Northern Guaso Nyiro River, July 31, 10; Tharaka district, August 13, 10 birds; Tana River, August 15–18, 35 birds seen.

Nothing seems to be known of the breeding habits or season.

URAEGINTHUS BENGALUS SCHOANUS Neumann

Uraeginthus bengalus schoanus NEUMANN, Journ. für Orn., 1905, p. 350: Ejere, Shoa.

SPECIMENS COLLECTED:

1 adult male, Ourso, Ethiopia, July 19, 1911 (Ouellard coll.).
1 adult male, Iron Bridge, Hawash River, Ethiopia, February 5, 1912.
1 adult male, Hawash River, Ethiopia, February 13, 1912.
1 adult male, Serre, Ethiopia, February 13, 1912.
1 adult female, no locality, Ethiopia, March 4, 1912.
1 adult female, Gidabo River, Ethiopia, March 17, 1912.
1 adult female, near Gardula, Ethiopia, March 27, 1912.
18 adult males, 7 adult females, Gato River near Gardula, Ethiopia, March 31–May 14, 1912.
1 immature male, Bodessa, Ethiopia, May 29, 1912.
1 adult female, Sagon River, Ethiopia, June 3, 1912.
1 adult male, Mar Mora, Ethiopia, June 14, 1912.
1 adult female, Yebo, Ethopia, June 21, 1912.
1 adult male, 2 adult females, east of Lake Stefanie, Kenya Colony, May 30, 1912.
1 immature male, 1 adult female, Endoto Mountains, Kenya Colony, July 23, 1912.
1 immature female, 24 miles south of Malele, Kenya Colony, July 29, 1912.

Soft parts: Female—iris light yellowish brown; bill reddish brown. pale at base, black at tip; feet brownish flesh-color, claws brown.

In the present study I have examined about 100 skins of the red-cheeked cordon-bleu and find that the conclusions reached by Lynes[77] and followed by Sclater[78] are completely substantiated. Consequently, there is no need of here repeating or discussing the facts already presented by Lynes.

The Abyssinian race occurs in the southern part of the Ethiopian highlands up to 8,000 feet and in the adjacent, southwestern part of the Somali arid district in Gallaland. The nominate race occurs to the west (in the Sudan) and to the north (Eritrea) of it; the form *brunneigularis* replaces it to the south in the high country of the interior of Kenya Colony, while the pale race *ugogoensis* inhabits the coastal belt from southern Somaliland to Dar es Salaam. The Abyssinian form is more richly colored than *bengalus;* from *brunneigularis* it differs slightly in size (*schoanus* being the larger of the two) but chiefly in the plumage of the females which have blue cheeks in *schoanus* and brown ones in *brunneigularis.*

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[77] Ibis, 1926, pp. 370–373.

[78] Systema avium Æthiopicarum, pt. 2, pp. 804–805, 1930.

Heuglin and Blanford found the nominate form common in the highlands of Eritrea, but also reported it from places only 1,200 feet above the sea (such as Ailet). Ragazzi, Lovat, Harrison, and Pease found *schoanus* plentiful in Shoa and the Hawash area, and Donaldson Smith met with it in the arid Somali country. Shelley[79] has summarized these data. Since then Erlanger[80] found it in Shoa, Arussi-Gallaland, and in the Harrar region. He obtained nests with eggs late in April, in May, and early in June. He found from two to 5 eggs in each nest.

At Gato River, during April and May, Mearns found this species breeding in great numbers, and collected 14 sets of eggs. In some cases the birds made their own nests while in others they utilized old nests of other weavers, especially of the *Ploceus* group. Thus, to quote from Mearns's notes of May 13, we find opposite an entry of a nest with 4 eggs: "I watched the birds building the nest in a dense thorny bush, in a grassy opening. The nest was 4 feet above the ground. The parents were seen entering it or leaving," and also: "I found another set of 5 incubated eggs of cordon-bleu in a Hyphantornis nest. On May 14 I took 6 incubated eggs of the cordon-bleu in a nest of the least *Hyphantornis* and shot the cordon-bleu beside the nest. This makes three cases, in two days, of the cordon-bleu occupying weaver birds' nests. In each case some of the fine grass used by the cordon-bleu in building its own nest had been added as a lining to the weaver birds nest." Contrary to Erlanger's experience, Mearns found as many as six eggs in some nests.

Inasmuch as this form is slightly larger than its southern neighbor, *brunneigularis*, dimensional data are worth recording. The variations shown by the present series are as follows: Males—wing, 52–58 (average, 54.6); tail, 54–70 (59); culmen, 10–10.5 (10.06); tarsus, 14–15 (14.5 mm). Females—wing, 51–56 (53); tail, 47–55.5 (51.1); culmen, 8.5–10.5 (9.6); tarsus, 13–15 (14.4 mm).

Mearns noted this bird commonly near water on his Hawash journey from Dire Daoua to Gada Bourca. He did not meet with it at Adis Abeba or in the Arussi Plateau, but in the lake region of southern Shoa he saw from 5 to 200 birds daily [March 7 (Aletta) to June 17 (Turturo)].

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[79] The birds of Africa, vol. 4, p. 190, 1905.

[80] Journ. für Orn., 1907, p. 22.

URAEGINTHUS BENGALUS BRUNNEIGULARIS Mearns

Uraeginthus bengalus brunneigularis Mearns, Smithsonian Misc. Coll., vol. 56, no. 20, p. 6, 1911: Wambugu, near Mount Kenya.

Specimens collected:

1 male, 2 females, Tharaka district, Kenya Colony, August 12–14, 1912.
1 female, Tana River, Kenya Colony, August 18, 1912.
1 male, 2 females, Tana River at mouth of the Thika River, Kenya Colony, August 24–25, 1912.

This is the bird of the highlands of the interior of the southern half of Kenya Colony. In the Elgon district it intergrades with *ugandae.*

The slightly smaller size of this race, as compared with *schoanus*, may be sensed from the dimensions of the present specimens: Males—wing, 52, 53; tail, 56, 58; culmen, 10, 10; tarsus, 14, 15 mm. Females—wing, 49.5–55 (average, 52.7); tail, 48.5–53 (51.5); culmen, 9–10 (9.4); tarsus, 13–14.5 (14 mm). The birds are in fairly fresh plumage.

Mearns noted this species every day during his travels between the Tharaka district (August 12) and the Thika and Athi Rivers (September 1). He saw from 20 to 100 birds daily.

GRANATINA IANTHINOGASTER IANTHINOGASTER (Reichenow)

Uraeginthus ianthinogaster Reichenow, Orn. Centralbl., 1879, p. 114: Massa, Tana River.

Specimens collected: 5 males, 2 females, Tana River, Kenya Colony, August 15–17, 1912.

I have examined good series of all four races of the purple grenadier and find the arrangement presented by Sclater [81] very satisfactory. I have not seen material wherewith to judge the status of *rothschildi* and *montana*, and I accept Sclater's conclusion as to their identity with *roosevelti.* Hartert,[82] however, recognizes *rothschildi* as valid, but not *montana.*

Van Someren [83] suggests that the birds of central Tanganyika Territory (Dodoma region) may prove to be separable, differing from *ianthinogaster* in being more grayish, less rufescent, on the back, with the color of back and head more contrasting than in Kenyan birds. I have seen a pair of adults from Dodoma, and the differences mentioned by van Someren are exhibited by them. However, if, as Sclater suggests, *rothschildi* and *montana* are synonymous with *roosevelti*, the last-named form must be very variable, and I therefore do not care to describe a new race from Dodoma on such meager data.

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[81] Systema avium Æthiopicarum, pt. 2, pp. 806–807, 1930.
[82] Nov. Zool., vol. 34, p. 195, 1928.
[83] Nov. Zool., vol. 29, p. 160, 1922.

Zedlitz[84] notes that a bird from Ugogo, collected by Emin, is somewhat lighter than typical *ianthinogaster*, and also suggests that an undescribed race may be found to inhabit central Tanganyika Territory.

The present race occurs in Kenya Colony north to the Tana River and west to the Sotik area and the Rift Valley, south to the Dodoma region of Tanganyika Territory. In southwestern Kenya Colony the grayer-backed race *roosevelti* replaces it. In northeastern Uganda, Shoa, and the Hawash region of Ethiopia the race *ugandae* occurs. This form differs in the males in having the head less bright rufous, the mantle hair brown, and the blue on the breast more limited in extent, and that on the abdomen, paler than in *ianthinogaster*. According to van Someren,[85] *ugandae* differs in the female plumage "from all known forms in being paler rufous on the head and breast, in having a very restricted white or pale lilac eye-ring, and in having the abdomen whitish." I can not agree with all of this; females from Ethiopia (*ugandae*) are often darker, not paler, on the head and breast, than examples from the Tana River, but are also sometimes paler as in van Someren's notes. The only character that appears to be constant is the color of the middle of the abdomen, which is purer white in *ugandae*, slightly washed with pale tawny-buff in *ianthinogaster*.

Recently, van Someren[86] has defended the validity of *montana* and *rothschildi* and clearly stated their ranges.

The birds inhabiting Somaliland and Gallaland, *hawkeri* Phillips, are characterized by their bright heads and upper backs and breasts.

The present specimens show considerable variation in state of plumage, some being fairly freshly feathered, others definitely worn in appearance; one male (August 17) shows signs of molt in the tail. The size variations are as follows: Males—wing, 52–54 (average, 52.4); tail, 58–65 (62); culmen, 10.7–11.2 (10.9); tarsus, 15.2–16.5 (15.9 mm). Females—wing, 51, 51; tail, 57, ——; culmen, 10.8, 11; tarsus, 15.3, 15.5 mm.

If one were to judge the abundance of this bird by the recorded knowledge of its habits, one would be led to assume it to be a very scarce form. That this is not so is revealed by the following entries in Mearns's field books: Tharaka district, August 12–14, 8 birds; Tana River, August 15–20, 460 seen.

GRANATINA IANTHINOGASTER UGANDAE van Someren

Granatina ianthogaster ugandae VAN SOMEREN, Bull. Brit. Orn. Club, vol. 40, p. 53, 1919: Moroto, northern Uganda.

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[84] Journ. für Orn., 1916, pp. 39–40.

[85] Bull. Brit. Orn. Club, vol. 40, p. 53, 1919.

[86] Nov. Zool., vol. 37, p. 328, 1932.

Specimens collected:

2 adult males, Ourso, Ethiopia, June 19 and November 7, 1911 (Ouellard).
6 adult males, 1 immature male, 2 adult females, 1 immature female, Dire Daoua, Ethiopia, October 27–December 21, 1911.
2 adult males, Hawash River, Ethiopia, February 7–9, 1912.
2 adult males, 1 adult female, Gidabo River, Ethiopia, March 17, 1912.
8 adult males, 3 adult females, Gato River near Gardula, Ethiopia, April 2–May 2, 1912.
1 adult female, Bodessa, Ethiopia, May 20, 1911.
1 adult male, 1 adult female, Sagon River, Ethiopia, June 4, 1912.
2 immature males, 2 immature females, Tertale, Ethiopia, June 8, 1912.

Soft parts: Bill red (purplish black at base of maxilla in female); eye rim red.

In the original description of this race, van Someren gave its range as "the desert country in western Uganda south to South Rudolf and Suk." This, of course, is quite wrong, as the bird never occurs in western Uganda. Later[87] he corrected it to "South Ethiopia to Lake Rudolf and Turkana."

The birds taken in March and April are in fresh plumage; molting birds were collected in December, April, and June; worn specimens in October, November, and December. Ogilvie-Grant[88] writes that none of the specimens obtained by Zaphiro north of Lakes Rudolf and Stefanie in August are in full plumage. It is a little difficult to reconcile this with the plumage condition of the present specimens.

One of the males from Gidabo River is very pale generally and partly albinistic on the upper abdomen. The females vary greatly, some being much darker than others on the head, throat, and breast.

The size variations are as follows: Males—wings, 53.5–58 (average, 56.1); tail, 56–65.5 (61.4); culmen, 10–12 (11.1); tarsus, 14–17 (15.4 mm). Females—wing, 50.5–58 (54.9); tail, 53–61.5 (57.7); culmen, 10–11.5 (10.9); tarsus, 14–16 (15.3 mm).

Very little has been recorded of the habits of this race of the purple grenadier. Pease[89] found it very common at low altitudes, "where it frequents the bush" at Moulou, Arbawun, and Hülül. Mearns wrote that the birds taken at Sagon River, June 4, were a mated pair.

Erlanger[90] found the Somali race *hawkeri* breeding in April and May.

Mearns recorded this weaver as "common along the edges of the grass and bush country," between Dire Daoua and Gada Bourca in February. In the Sidamo and Boran regions he recorded it as follows: Gidabo River, March 15–17, 100; Abaya Lakes, March 18–19, 110 birds; Gato River near Gardula, March 29–May 17, 200; Bodessa,

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[87] Nov. Zool., vol. 29, p. 159, 1922.
[88] Ibis, 1913, p. 572.
[89] Ibis, 1901, p. 620.
[90] Journ. für Orn., 1907, pp. 23–24.

May 19–June 3, 4 seen; Sagon River, June 3–6, 10 birds; Tertale, June 7–12, 20 noted; Turturo, June 15–17, 4 seen; Anole, June 17, 2 birds; Wobok, June 18, 10 seen; Saru, June 19, 4 birds seen.

VIDUA MACROURA (Pallas)

Fringilla macroura PALLAS, Adumbratiuncula, *in* Vroeg's Catalogue No. 144, p. 3, 1764: "East Indies;" Angola, *ex* Edwards and Brisson.

SPECIMENS COLLECTED:

2 adult males, Ourso, Ethiopia, September 1–11, 1911 (Ouellard coll.).
1 adult male, Gato River crossing, Ethiopia, May 17, 1912.
1 adult female, Mar Mora, Ethiopia, June 14, 1912.
1 adult male, Wobok, Ethiopia, June 18, 1912.

The pin-tailed whidah occurs throughout the Ethiopian region from Senegal, the Sudan, and Eritrea south to the Cape Province and Natal, as well as some of the adjacent islands in the Gulf of Guinea and the Mozambique Channel. Throughout its enormous range it is a common bird in suitable open country and has not become differentiated into racial groups.

In a series of 116 specimens before me, a black chin spot is well marked in 31 and absent in 30 males in breeding plumage, while others have it indicated more or less. There are specimens, however, with and without this mark from the same locality in many cases, so that it is quite obvious that the black chin spot has no taxonomic significance.

There is still much to be learned of the molts of this bird. A male from Uitenhage, South Africa (U.S.N.M. no. 159582), collected in September, is in winter plumage, but the entire plumage, including the wings and tail, is so very fresh that the bird must have finished molting not later than August. Inasmuch as the breeding season in South Africa is over by the end of March, this individual must have retained its nuptial plumage until late into the southern winter (August). I found *Vidua macroura* chiefly in winter dress until the middle of October in Natal, and from then on most males seen were either molting or in full summer plumage. (One in full breeding plumage October 9.) The long rectrices can not be of any help to the birds in flight and may be a decided encumbrance. Consequently, it is somewhat surprising to find that in this bird the breeding plumage is retained so long into the southern winter. It may be that the long tail feathers were dropped in April or May and the rest of the nuptial plumage retained until later. The Uitenhage specimen referred to has the white margins of the rectrices unusually well developed; in fact, the fuscous portion is restricted to little more than a broad shaft streak in the outermost pair.

In the prenuptial molt the four long rectrices come in about the time body molt commences. The crown molts first, then the sides of the breasts to form the black gorgets of the breeding plumage; the nuchal collar, the scapulars, and lesser coverts come next. The interscapulars, back, and rump are not molted, but the brown edges wear off, leaving the uniform black color. The rectrices and remiges are not changed in the prenuptial molt. The tertials apparently are not molted, but become black through the wearing away of their brownish edges. The postjuvenal molt is apparently incomplete, the juvenal rectrices being retained in the first nonbreeding plumage.

The molts and plumages of *Vidua macroura* are as follows:

MALE

1. Natal down—grayish dusky.

2. Juvenal plumage acquired by a complete postnatal molt. *Above:* Head, hind neck, scapulars, interscapulars, back and rump tawny-olive, darker on the head, which is intermediate in color between tawny-olive and Saccardo's umber, the interscapulars and feathers of the back with somewhat dusky centers producing a faintly streaked appearance, rump washed with cinnamon; upper tail coverts fuscous, broadly edged and tipped with Sayal brown; tail feathers fuscous-brown narrowly edged with Sayal brown; lesser and middle wing coverts like the scapulars; greater wing coverts, and tertials light fuscous-brown broadly edged externally with Sayal brown; secondaries and primaries fuscous-brown externally narrowly edged with Sayal brown and internally edged with buffy whitish; sides of head pale vinaceous-buff; lores blackish. *Below:* chin, throat, breast, flanks, abdomen, thighs, and under tail coverts light buff washed with chestnut, the chestnut most pronounced on the breast, flanks, and thighs; under wing coverts whitish tinged with light buff, bill dark brown.

3. First winter plumage acquired by a partial molt involving feathers of the head, scapulars, and wing coverts. *Above:* Head, ochraceous-tawny, a broad black stripe on each side from the base of the upper mandible to the nape; nape, back, and rump tawny-olive, the interscapulars and scapulars black broadly edged with ochraceous-tawny; upper tail-coverts fuscous, edged and tipped with olive-tawny; lesser, middle, and inner greater coverts like the scapulars; remiges and rectrices as in juvenal plumage—fuscous-brown, but with the tawny edges narrow from wear, and the buffy-white inner edges of the primaries also narrower than in juvenal plumage; sides of head pale buffy, a black stripe through the eye from the bill to the nape; a malar line of black spots which vary considerably in different specimens. *Below:* Chin whitish; throat, breast, abdomen, flanks, thighs, and under tail-coverts as in juvenal plumage but whiter and with a few black spots on the sides of the breast and occasionally on the thighs; bill reddish brown.

4. First nuptial plumage acquired chiefly by wear. Similar to first winter plumage but the remiges and rectrices are darker and the entire upper parts more streaked with blackish; bill red.

5. Adult winter plumage acquired by a complete postnuptial molt. Similar to first nuptial plumage, but the upperparts more heavily streaked with black; the remiges and rectrices dark fuscous-black, margined with tawny; bill red. Birds in this plumage may be told from individuals in first nuptial plumage by the darker remiges and rectrices which are *new*, not *worn*.

6. Adult nuptial plumage acquired by a partial molt involving feathers of the head, body, and tail, but not the remiges. *Above:* Head, scapulars, interscapulars, and back black slightly glossed with greenish; nuchal collar white; lower back and rump white, the feathers with blackish shaft stripes; lesser and middle wing coverts white forming a large white patch; greater coverts, primaries, and secondaries black, some of the inner secondaries with remnants of the tawny edges of the adult winter plumage; tail feathers black, the four central ones greatly elongated and wholly black, the other rectrices tipped with tawny, the inner webs very broadly margined with white; sides of head white; the lores black, the black sometimes extending in small specks onto the cheeks. *Below:* Chin white, sometimes with a black spot, throat, breast, abdomen, flanks, thighs, and under tail-coverts whitish, the sides of the throat black forming a distinct gorget on either side; bill red.

FEMALE

1. Natal down. Same as male.

2. Juvenal plumage acquired by complete postnatal molt. Same as male.

3. First winter plumage acquired by a partial molt as in male. Same as male.

4. First nuptial plumage acquired by wear. Same as male; bill reddish.

5. Adult winter plumage acquired by complete postnuptial molt. Similar to young male in first nuptial plumage; bill red.

6. Adult nuptial plumage acquired by wear; bill changes from red to dark brown. Similar to adult winter plumage, except that the bill is dark brown.

The females are very similar to those of *Vidua hypocherina* but may be distinguished from the latter by the fact that *macroura* has narrow white margins on the inner webs of the primaries, while *hypocherina* has broad ones.

The young of the two are also quite similar but may be told apart by the following characters:

V. macroura: Upperparts solid ashy chestnut; underparts light buffy chestnut; axillars buffy white; *under tail-coverts light buffy.*

V. hypocherina: Entire bird dark ashy brown; lores black; axillars white; *under tail-coverts dusky ashy brown.*

It may be useful to field workers to have the differences between the females of *V. fischeri*, *V. regia*, *V. macroura*, *V. hypocherina*, and *Steganura* pointed out.

Steganura is the largest of them all; top of head buffy white with a broad blackish brown stripe on either side; underparts whitish with buff on breast and flanks; inner edge of primaries neither white nor buffy.

V. macroura and *V. hypocherina:* Top of head as in *Steganura;* inner edges of primaries white (other differences between the two as noted above).

V. fischeri: Top of head brown with dusky marks; underparts pale buffy; inner margins of primaries tinged with buff.

V. regia: Top of head as in *V. macroura* but has the superciliary streak whitish, not rufous-buff.

The present males taken in September and May are in breeding plumage; the one collected in June is in winter dress.

The pin-tailed whydah occurs throughout the region covered by the present report, but is chiefly a bird of the lower districts. Thus, Zedlitz[91] saw it chiefly at altitudes of not more than 900 meters.

At Dangila this bird is known to parasitize *Cisticola brunnescens brunnescens* frequently. According to Lynes,[92] the breeding season of the grass warbler is from June to October, which must, then, be also that of *Vidua macroura.*

VIDUA HYPOCHERINA Verreaux

Vidua hypocherina J. and E. Verreaux, Rev. Mag. Zool., 1856, p. 260, pl. 16: "West Africa"; probably East Africa.

Specimens collected:

6 adult males, Ourso, Ethiopia, September 2–11, 1911 (Ouellard).

5 adult males, 1 immature male, 4 adult females, Tertale, Ethiopia, June 8–10, 1912.

Soft parts: Iris brown; bill grayish, fleshy brown at the base, becoming dusky at the tip; feet pale grayish brown.

The Ourso males are all in full breeding plumage; the Tertale ones are in prenuptial molt.

When the male molts out of the black nuptial dress the long rectrices are shed first, leaving the bird very similar in appearance to *Hypochera.* The body molt is rather irregular. Because of the stage in which this species is so similar to *Hypochera*, it is very difficult to identify *Loxia nubilosa* Bechstein.[93] If this bird should prove to be *V. hypocherina*, Bechstein's name would have to be used for it in place of the present one.

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[91] Journ. für Orn., 1911, p. 30.

[92] Ibis, Suppl., Oct. 1930, p. 161.

This whydah is much more local and less common than *V. macroura* and, consequently, is less known. It occurs from western Somaliland, Gallaland, southern Sidamo and Boran south through the more arid portion of Kenya Colony to Ugogo and Dodoma in Tanganyika Territory.

According to van Someren,[94] birds in breeding condition were taken in June in north Kavirondo.

VIDUA FISCHERI (Reichenow)

Linura fischeri Reichenow, Orn. Centralb., 1882, p. 91: Usegua.

Specimens collected:

7 adult males, Ourso, Ethiopia, September 5–December 3, 1911 (Ouellard).
1 adult female, Gato River near Gardula, Ethiopia, April 27, 1912.
3 adult males, 1 immature male, Tertale, Ethiopia, June 10, 1912.
1 adult male, southeast Lake Stefanie, Kenya Colony, May 12, 1912.

Fischer's pin-tailed whidah occurs throughout the same areas as *V. hypocherina*, a rather remarkable coincidence that does not appear to have been noted before.

The adult males are all in nuptial plumage.

Shelley[95] has summarized the relatively few northeast African records of this bird. Since then very little has been added.

Van Someren[96] writes that birds "from South Ethiopia are hardly as deep glossy black on the mantle, and the straw colour of the crown is paler; but fresh material may show these differences to be due to wear." I have compared the present specimens with others from Kenya Colony and Tanganyika Territory and find no geographical difference.

This species lives in the bush and scrub country and does not range into the highlands.

STEGANURA PARADISAEA (Linnaeus)

Emberiza paradisaea Linnaeus, Systema naturae, ed. 10, p. 178, 1758: Africa; restricted to Angola in ed. 12, p. 312, 1766.

Specimens collected:

16 adult males, Ourso, Ethiopia, September 3–October 16, 1911 (Ouellard).
2 adult males, Dire Daoua, Ethiopia, no date.
1 adult male, 1 adult female, 1 unsexed immature, Dire Daoua, Ethiopia, December 15, 1912.

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[93] Getreue Abbildungen naturhistorischer Gegenstaende, etc., vol. 8, p. 69, pl. 86, fig. b 1802.

[94] Ibis, 1916, p. 426.

[95] The birds of Africa, vol. 4, pp. 24–25, 1905.

[96] Nov. Zool., vol. 29, p. 152, 1922.

1 adult female, south Lake Stefanie, Kenya Colony, May 17, 1912.
3 adult males, Tertale, Ethiopia, June 8, 1912.
2 adult females, Northern Guaso Nyiro River, Kenya Colony, August 1, 1912.
1 adult female, 1 immature male, Tharaka district, Kenya Colony, August 14, 1912.
6 adult females, 1 immature male, Tana River, Kenya Colony, August 14–15, 1912.

Soft parts (male): Iris dark brown; bill entirely black; feet and claws dusky olive-brown.

I follow Chapin[97] in considering *paradisaea* as one species and *aucupum* and its forms another. Sclater[98] unites them all as one specific group.

This paradise whidah occurs from Eritrea and Ethiopia to the Upper White Nile and northwestern Uganda, east to the coast of Kenya Colony, and south through eastern Africa to the eastern Cape Province.

Van Someren[99] is of the opinion "that the East African form of *S. paradisea* will have to be recognized under a special name when sufficient typical material is available. The female birds are darker, more brownish on the mantle and below, than Abyssinian specimens. The young in first nestling plumage are considerably darker. Adult males are indistinguishable." I have compared females from Ethiopia and south-central Kenya Colony and find them indistinguishable.

All the adult males collected by the Frick expedition are in breeding plumage. One of the "females" from the Tana River appears to be a male in a very early stage of the prenuptial molt.

According to Heuglin,[1] the species is common in Bogosland and northern Ethiopia but does not range above 7,000 feet in the mountains. Heuglin found the birds in postnuptial molt in October.

Family FRINGILLIDAE, Sparrows, Finches, etc.

SERINUS DORSOSTRIATUS MACULICOLLIS Sharpe

Serinus maculicollis SHARPE, Bull. Brit. Orn. Club, vol. 4, p. 41, 1895: Somaliland; type in British Museum from Milmil.

SPECIMENS COLLECTED:

4 adult males, 3 adult females, Dire Daoua, Ethiopia, December 4–21, 1911.
1 adult male, 1 adult female, 1 juvenal male, Le-se-dun, Kenya Colony, July 26, 1912.
1 unsexed, Malele, Kenya Colony, July 27, 1912.
1 adult male (=female), 1 adult female, Lekiundu River, Kenya Colony, August 5–6, 1912.

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[97] Amer. Mus. Nov., no. 43, pp. 1–12, 1922.

[98] Systema avium Æthiopicarum, pt. 2, p. 810, 1930.

[99] Nov. Zool., vol. 29, p. 152, 1922.

[1] Ornithologie Nordost-Afrika's, etc., vol. 1, p. 583, 1869.

In the absence of material adequate for a review of the forms of this species, I follow Sclater[2] in referring the present specimens to *maculicollis*. Van Someren,[3] however, considers birds from Archers Post (not far from Lekiundu River) as "near *taruensis*." Furthermore, the south Somali form *harterti* is said by Zedlitz[4] to be smaller than *maculicollis* (wing, males 68–73, females 65–71 mm in *maculicollis;* males 64–69, females 62–64 mm in *harterti*). One of the present males from Dire Daoua (where Zedlitz records *maculicollis*) has a wing length of only 65 mm and is therefore as near to *harterti* as to *maculicollis*. The other males and the three females from Dire Daoua are larger (wings, 66–73 mm) and are obviously *maculicollis*.

Inasmuch as size is an important character in this canary, the measurements of the present adult birds are given (table 79).

Molting specimens were collected in December and August; a bird in worn plumage in December; freshly feathered birds in December, July, and August.

This race of the white-bellied canary occurs in British Somaliland, Gallaland, and northern Kenya Colony, west to Lakes Stefanie, Rudolf, and Baringo. It is rather common in many places throughout its range and has been obtained by a number of collectors, such as Donaldson Smith, Elliot, Lort Phillips, Hawker, Zaphiro, and Erlanger.

Erlanger[5] found a nest with three eggs on April 27 at Erer Tal near Harrar.

Mearns observed this bird at intervals during his journey from Dire Daoua to Adis Abeba.

TABLE 79.—*Measurements of 11 specimens of* Serinus dorsostriatus maculicollis

Locality	Sex	Wing	Tail	Culmen	Tarsus
ETHIOPIA:		*Mm*	*Mm*	*Mm*	*Mm*
Dire Daoua	Male	65.0	49.0	9.5	15.5
Do	do	68.0	50.0	10.0	15.5
Do	do	70.0	51.5	9.5	15.5
Do	do	73.0	52.0	9.5	15.5
KENYA COLONY: Le-se-dun	do	68.5	50.0	9.5	15.0
ETHIOPIA:					
Dire Daoua	Female	66.0	50.0	9.0	--------
Do	do	68.0	52.0	10.0	15.5
Do	do	67.0	49.0	----------	15.0
KENYA COLONY:					
Le-se-dun	do	70.0	52.0	9.0	14.5
Lekiundu River	do	68.0	53.5	9.0	15.5
Do	do	68.5	51.0	9.5	15.0

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[2] Systema avium Æthiopicarum, pt. 2, p. 815, 1930.

[3] Journ. East Africa and Uganda Nat. Hist. Soc., no. 35, p. 61 (137), 1930.

[4] Journ. für Orn., 1916, pp. 47–51.

[5] Journ. für Orn., 1907, p. 31.

SERINUS FLAVIVERTEX FLAVIVERTEX (Blanford)

Crithagra flavivertex BLANFORD, Ann. Mag. Nat. Hist., vol. 4, p. 330, 1869: Tigre; type in British Museum from Adigrat, Tigre Province, Ethiopia.

SPECIMENS COLLECTED:

1 male, Adis Abeba, Ethiopia, January 9, 1912.
1 male, 1 female, Arussi Plateau, Ethiopia, February 29, 1912.

The yellow-crowned canary ranges from the northern parts of Ethiopia south to Nyasaland and reappears in the Mossamedes district of Angola. It is said to divide into three races—*flavivertex*, *sassii*, and *huillensis*. I have seen no material of either of the last two and therefore can not form an opinion about them. They are recognized by Sclater[6] and by other authors who have had to deal with them.

Van Someren[7] writes of his series of this bird from various localities in Kenya Colony, that it "is remarkable that eight males collected in the Molo Forest, Mau, and the Aberdare Mountains are not dark breasted, like those from Escarpment and Elgon, which agree with the typical form of Abyssinia." This is rather ambiguous and difficult to interpret, but it seems as if van Someren had two types of plumages, which appeared to be geographic. I have not see any Elgon or Escarpment specimens, but two Kilimanjaro birds are different from Ethiopian ones seen. Granvik[8] writes that his specimens from Elgon differ from others from elsewhere—

> * * * in not having the forehead, sides of head, lower surface and upper tail-coverts yellow (mostly green). Besides, the wings and tail are blackish brown, darker than in the type specimen. Whether the characters are constant for the Elgon specimens or those occurring in East Africa, and they thus belong to a separate form, I cannot at present decide, although it seems very probable, as all my specimens are alike. * * * Neumann * * * described * * * *sassii*, from Tschingogo forests, which has a yellow tail. In Stockholm there is one ♀ * * * from Kilimanjaro * * * which agrees very well with mine in being predominantly green, while specimens from Abessynia and the northern regions, on the other hand, are more yellowish."

It may be that there is a distinct race on Mount Elgon, but the Kilimanjaro bird referred to by Granvik is not similar to the two Abbott specimens seen by me. Neumann[9] likewise found Ethiopian and Kilimanjaro birds to be alike.

The Adis Abeba specimen is in a molting condition, especially in the wings and tail; the Arussi male is in fresh plumage, the female in rather abraded condition.

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[6] Systema avium Æthiopicarum, pt. 2, pp. 817, 818, 1930.

[7] Nov. Zool., vol. 29, p. 172, 1922.

[8] Journ. für Orn., 1923, Sonderheft, pp. 191–192.

[9] Journ. für Orn., 1905, p. 354.

Shelley[10] writes that this canary is not rare in Shoa according to Ragazzi, who collected only a single specimen, however, while Heuglin suggests that it is rare farther north, as he never saw it at all.

Erlanger[11] obtained a series of 17 specimens in the Hawash and Arussi-Galla areas, which indicates that the species is not very scarce there. Mearns noted individuals of this canary from time to time along the Hawash River. Ogilvie-Grant[12] writes that it is a rare and local species. Zaphiro met with it in the Managasha Forest and in Gofa. One reason why some collectors have found it to be apparently uncommon is that they collected largely at lower altitudes than those most favored by the species. Neumann[13] writes that it lives only on the high mountains between 2,600 and 3,000 meters (8,500–9,000 feet).

Granvik reported the yellow-crowned canary as occurring on the eastern slopes of Mount Elgon at about 9,000 feet in large flocks consisting of hundreds of individuals.

The only information concerning the breeding season of this bird is Erlanger's record of a nest with three incubated eggs on June 28 at Sheikh-Husein, in Arussi-Gallaland. The nest, said to be a typical serin's nest, was placed about 1½ meters up in a bush. The eggs, similar in color to those of the common European serin, measure from 17.5 to 18 by 12.5 to 13 mm.

POLIOSPIZA TRISTRIATA TRISTRIATA (Rüppell)

Serinus tristriatus Rüppell, Neue Wirbelthiere, zu der Fauna von Abyssinien gehörig, etc., Vögel, p. 97, pl. 35, fig. 2, 1840; Taranta Pass, Abyssinia.

Specimens collected:

4 adult males, 3 adult females, 1 unsexed, Adis Abeba, Ethiopia, December 30, 1911–January 3, 1912.
1 immature female, Arussi Plateau, 9,000 feet, Ethiopia, February 23, 1912.
1 immature male, Malke, Ethiopia, March 3, 1912.

One of the females from Adis Abeba, collected December 31, is molting in the tail but not elsewhere, although all the feathers are much abraded. The rest of the present series are all in worn plumage.

Shelley[14] writes that the immature birds have the underparts "whiter and strongly striped with brown on the lower throat and flanks" than the adults. The two young birds collected by Mearns are not whiter below than the adults, and the striping is not confined to the lower throat and flanks but extends over the entire breast and sides and even the upper and lateral portions of the abdomen.

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[10] The birds of Africa, vol. 3, pp. 189–190, 1902.
[11] Journ. für Orn., 1907, p. 31.
[12] Ibis, 1913, p. 582.
[13] Journ. für Orn., 1905, p. 354.
[14] The birds of Africa, vol. 3, p. 230, 1902.

The size variations of the adults are as follows: Males—wing, 66–68 (average, 66.8); tail, 51–56 (54); culmen, 10–10.5 (10.1); tarsus, 16–17 (16.3 mm). Females—wing, 66–69 (67); tail, 51.5–57 (55); culmen, 9.5–10 (9.8); tarsus, 16–17 (16.5 mm).

This seed-eater occurs from Eritrea to British Somaliland, Shoa, and Arussi-Gallaland, where it seems to be restricted to fairly high ground. Heuglin found it numerous at altitudes of from 4,000 to 11,000 feet in Bogosland and Tigre; Blanford[15] found it "very common throughout the highlands, generally amongst bushes, in small flocks or singly. It keeps much to the ground. I never saw it at lower elevations." Lovat and others have noted that this finch prefers the wooded areas to open or cultivated places. Erlanger[16] found it in some numbers at Harrar, Gara Mulata, and Adis Abeba and in Arussi-Gallaland.

Lort Phillips[17] separated the British Somaliland birds under the name *pallidior* on the basis of paler, grayer color on the breast and sides. This race, which I have not seen, is accepted by Sclater[18] but has been seriously questioned by other authors, such as Shelley[19] and Bannerman.[20]

Erlanger found nests with fresh eggs from April to October and suggests that there may be more than one brood involved. The usual clutch is composed of three or four eggs, which are said to be pale greenish white sparingly flecked with violet-gray and pale or dark reddish brown. Judged by the very worn plumage of all the present specimens, it would seem that the breeding season extends later than October, as it appears that only birds recently through breeding would be so abraded.

POLIOSPIZA ATROGULARIS REICHENOWI (Salvadori)

Serinus reichenowi SALVADORI, Ann. Civ. Mus. Genova, vol. 26, p. 272, 1888: Cialalaka, Shoa.

SPECIMENS COLLECTED:

3 adult males, Gato River near Gardula, Ethiopia, April 27–May 8, 1912.
1 immature male, Sagon River, Ethiopia, May 19, 1912.
1 adult female, Bodessa, Ethiopia, May 27, 1912.
2 adult males, 2 adult females, Tertale, Ethiopia, June 9–11, 1912.
1 adult male, Tana River at mouth of Thika River, Kenya Colony, August 23, 1912.

The material available for study (18 specimens) does not permit any attempt at a review of the forms of the yellow-rumped seed-eater, but the following observations are worthy of record: Two examples from Dar es Salaam (Loveridge collection), now in the Museum of Comparative Zoology, are paler on the head than any Kenyan or Ethiopian specimens seen and are also peculiar in that they have very poorly defined light superciliary stripes. There may be an undescribed race in the north Tanganyikan coastlands, although more material is needed to substantiate this. Zedlitz[21] included Tanganyika Territory in the range of this race on the basis of 20 examples from that country, although later[22] he made no mention of Tanganyika Territory in his distributional summary. It would appear that if his 20 birds were like the two Dar es Salaam specimens, he would have noticed the coloration and commented on it, and that therefore it may be inferred that his Tanganyikan examples were similar to more northern ones. He mentions only a slight difference in the width of the bill, a character that is not noticeable in my material.

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[15] Observations on the geology and zoology of Abyssinia, p. 413, 1870.
[16] Journ. für Orn., 1907, p. 30.
[17] Ibis, 1898, p. 398.
[18] Systema avium Æthiopicarum, pt. 2, p. 819, 1930.
[19] The birds of Africa, vol. 3, p. 231, 1902.
[20] Ibis, 1910, p. 297.

Sclater[23] recognizes six races, three of which occur in northeastern Africa. In Eritrea and northern Ethiopia there is a large race, *xanthopygius*, with wings measuring more than 70 mm in length; in Shoa and Gallaland south through the interior of Kenya Colony to north-central Tanganyika Territory the present form, *reichenowi*, occurs. It is characterized by smaller size (wings, 64–70 mm) and less pure whitish underparts, more heavily streaked breast and sides, and more olivaceous upperparts than *xanthopygius*. Finally, in southern Somaliland and northeastern Kenya Colony, a still smaller, whiter-bellied, grayer-backed race, *hilgerti* (wings, 60–63 mm) flourishes. In Uganda and western Kenya Colony a black-chinned subspecies *somereni* is found, and still others occur in South Africa and in West Africa.

Van Someren[24] writes that birds from southwest of Lake Rudolf and from Suk may be an undescribed race, being paler, less brownish above than Kikuyu birds, approaching *hilgerti* but more brownish, less grayish above. He also states that Kenyan birds are less streaked below than Shoan birds and that "when a series of typical birds is available, the East African birds will have to be separated under a new name. I have compared seven birds from Ukamba and Kikuyu with eight from southern Shoa and find no such difference as van Someren claims. The Kenyan birds average slightly darker above than the Shoan ones, but the difference is small.

The young bird taken on May 19 at Sagon River is in fresh plumage; all the adults are abraded.

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[21] Orn. Monatsb., 1912, p. 75.

[22] Journ. für Orn., 1916, p. 46.

[23] Systema avium Æthiopicarum, pt. 2, pp. 821–822, 1930.

[24] Nov. Zool., vol. 29, pp. 169–170, 1922.

Shelley[25] writes that the plumage of the young differs from that of the adult in being more streaked on the breast. This is not all; the breast and upper abdomen are slightly washed with pale yellow in the immature bird, and the margins of the crown feathers are paler, more whitish in young examples.

The size variations of the adults are as follows: Males—wing, 63–67 (average, 65.4); tail, 40–44 (42); culmen, 7.5–9.5 (8.5); tarsus, 12–13.5 (13 mm). Females—wing, 63–65 (63.8); tail, 39.5–42 (40.7); culmen, 8.5–9 (8.6); tarsus, 13–13 (13 mm).

Fringilla angolensis Gmelin[26] is preoccupied by *Fringilla angolensis* Linnaeus[27] and therefore can not be used for this seed-eater. The next oldest name is *Linaria atrogularis* A. Smith.[28] The South African and Angolan race therefore becomes *Poliospiza atrogularis atrogularis* (A. Smith) and the other subspecies remain as before but have the specific name *atrogularis.* If, as Zedlitz[29] suggests, the Angolan birds be considered distinct, they would need a name.

Van Someren[30] found this seed-eater to be a partial local migrant in Kenya Colony. He found the birds breeding there from May to June and from December to January. Jackson[31] found a nest near the Guaso Molo River, Kenya Colony, in September. In the Harrar area of Ethiopia, Erlanger[32] found a nest on May 22.

POLIOSPIZA STRIOLATA STRIOLATA (Rüppell)

Pyrrhula striolata RÜPPELL, Neue Wirbelthiere, zu der Fauna von Abyssinien gehörig, etc., Vögel, p. 99, pl. 37, fig. 1, 1840: Halai and Simen, Abyssinia.

SPECIMENS COLLECTED:

1 adult male, 1 adult female, Adis Abeba, Ethiopia, December 30, 1911.
3 adult males, 1 immature male, 4 adult females, Arussi Plateau, Ethiopia, February 18–29, 1912.
1 adult male, Cofali, Ethiopia, March 2, 1912.
1 adult male, Aletta, Ethiopia, March 11, 1912.
6 adult males, 4 adult females, Escarpment, Kenya Colony, September 4–10, 1912.

Sclater[33] considers *affinis* Richmond a synonym of *striolata.* I have carefully compared Richmond's type and paratypical series with the present birds and find Sclater's conclusion to be justified. Van Someren[34] writes that birds from the forests of Nairobi south to Ukambani and Kilimanjaro are separable from Ethiopian examples, in that they have the underside buffy, not creamy white as in typical *striolata*. He considers them as *affinis*. I can not find any such difference in the ventral coloration in the two groups and therefore unite them. In the original description of *affinis*,[35] Richmond states that Kilimanjaro birds are smaller than Abyssinian ones, but here again I fail to find any constant difference. Sharpe[36] found specimens from Mount Elgon, Kikuyu, and Mount Kilimanjaro to be darker than ones from Ethiopia. This too is not substantiated in the material seen by me (55 specimens from Kenya Colony, Tanganyika Territory, and Ethiopia). The birds from Mount Elgon are darker above but are not *affinis* (type locality, Mount Kilimanjaro) but a distinct race, *ugandae* van Someren. A third form, *graueri* Hartert, like *ugandae*, but darker, deeper buff on the breast, occurs in the Ruwenzori and Kivu highlands. Gyldenstolpe[37] recognizes *affinis* and writes that in all the Abyssinian birds he has seen the underparts are pure whitish without any buff. Inasmuch as all the specimens collected by the Frick expedition are decidedly buffy below, I can only suggest that perhaps typical *striolata* is confined to extreme northern Ethiopia (Simien, etc.), whence I have seen no material, in which case the birds of Shoa and Arussi-Gallaland would have to be considered as *affinis*.

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[25] The birds of Africa, vol. 3, p. 219, 1902.
[26] Systema naturae, vol. 1, pt. 2, p. 918, 1789.
[27] Systema naturae, ed. 10, p. 182, 1758.
[28] Report of the expedition for exploring Central Africa, p. 49, 1836.
[29] Journ. für Orn., 1916, p. 46.
[30] Ibis, 1916, p. 428.
[31] Quoted by Shelley, The birds of Africa, vol. 3, p. 220, 1902.
[32] Journ. für Orn., 1907, p. 27.
[33] Systema avium Æthiopicarum, pt. 2, p. 823, 1930.
[34] Nov. Zool., vol. 29, p. 169, 1922.

The measurements of the present series are shown in table 80.

The specimens collected are in fairly fresh plumage, but there is some variation in this respect. Wear makes a fairly noticeable difference in the appearance of these birds, as in fresh plumage they tend to be more yellowish, especially on the upper wing coverts, than when abraded.

This seed-eater occurs over most of Ethiopia and Kenya Colony (except the coastal strip) and ranges north to the Bogos country of southern Eritrea. It occurs in the highland areas only, and has been recorded as high as 13,500 feet. The lower limits of its range seem to be about 5,000 feet, but it is chiefly a bird of altitudes above 7,500 feet. In southern Somaliland a little known form, *P. pachyrhyncha* occurs. It has been suggested by Zedlitz[38] that it may be a race of *P. striolata*, which, if true, would extend the lower limits of the range of the species very considerably.

Erlanger[39] found nests with eggs on October 8 at Adis Abeba, on April 23 at Cialanco, between Harrar and Adis Abeba, and on May 12 at Cunni, also between Harrar and Adis Abeba.

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[35] Auk, vol. 14, p. 156, 1897.

[36] Ibis, 1891, p. 258.

[37] Kongl. Svenska Vet.-Akad. Handl., 1924, pp. 70–72.

[38] Journ. für Orn., 1916, p. 51.

[39] Journ. für Orn., 1907, pp. 28–29.

Van Someren[40] found nests in Kenya Colony from March to July and from November to January.

Mearns noted about 1,000 of these birds at Aletta, March 7–13, and a similar number at Escarpment, September 4–12.

TABLE 80.—*Measurements of 21 specimens of* Poliospiza striolata striolata

Locality	Sex	Wing	Tail	Culmen	Tarsus
ETHIOPIA:		*Mm*	*Mm*	*Mm*	*Mm*
Adis Abeba	Male	72.0	61.5	13.0	18.0
Arussi Plateau	do	73.0	65.0	11.5	20.5
Do	do	69.0	59.5	12.0	20.0
Do	do	69.5	62.0	12.0	20.5
Cofali	do	71.0	61.5	12.0	20.0
Aletta	do	66.0	60.0	12.0	19.5
KENYA COLONY:					
Escarpment	do	70.5	61.0	12.0	21.0
Do	do	71.5	63.5	11.5	21.0
Do	do	67.0	61.0	11.0	19.5
Do	do	68.0	59.0	12.5	20.0
Do	do	69.0	61.5	12.5	20.5
Do	do	73.0	65.0	11.5	20.5
ETHIOPIA:					
Adis Abeba	Female	71.0	65.0	12.0	19.5
Arussi Plateau	do	70.5	64.5	12.0	18.5
Do	do	70.0	63.5	12.0	21.0
Do	do	70.0	61.5	12.5	20.0
Do	do	68.0	57.0	13.0	21.0
KENYA COLONY:					
Escarpment	do	68.0	59.0	12.0	19.0
Do	do	70.5	62.5	11.0	21.5
Do	do	69.0	61.0	12.0	19.5
Do	do	65.5	56.5	11.5	19.0

LINURGUS KILIMENSIS KILIMENSIS (Reichenow and Neumann)

Hyphantospiza kilimensis REICHENOW and NEUMANN, Orn. Monatsb., vol. 3, p. 74, 1895: Kilimanjaro.

SPECIMENS COLLECTED: 1 female, Escarpment, Kenya Colony, September 9, 1912.

This specimen is somewhat hesitatingly referred to this race as its locality is so far removed from the hitherto known range of *kilimensis*. However, the bird is dark greenish and matches, in its dorsal coloration, males of *kilimensis* and of *rungwensis*. I have seen no females of *kilimensis*, but the description seems to apply to this specimen as well.

I am led to a suspicion that there may be two distinct species of *Linurgus* in the highlands of eastern Africa, and not one species, as Sclater[41] suggests. There is a yellow-backed species *L. elgonensis*, with two forms—*elgonensis*, of Mount Elgon and northern Kavirondo, and *keniensis*, of Mount Kenya; and a green-backed species, *L. kilimensis*, with two forms—*kilimensis*, of Mount Kilimanjaro, the Usambara and Uluguru Mountains, and Escarpment, and a paler-bellied race *rungwensis*, in the highlands of southwestern Tanganyika Territory (Mount Rungwe and the Poroto Mountains). Further material from Escarpment may well show the birds of that area to be racially separable from true *kilimensis*.

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[40] Ibis, 1916, p. 428.

[41] Systema avium Æthiopicarum, pt. 2, p. 825, 1930.

The present bird is in fresh plumage; its dimensions are as follows: Wing, 71; tail, 47; culmen, 12.5; tarsus, 17 mm.

SPINUS CITRINELLOIDES CITRINELLOIDES (Rüppell)

Serinus citrinelloides Rüppell, Neue Wirbelthiere, zu der Fauna von Abyssinien gehörig, etc., Vögel, p. 95, pl. 34, fig. 1, 1840: Simien, Abyssinia.

Specimens collected:

1 male, Cofali, Ethiopia, March 3, 1912.
1 male, Botola, Sidamo, Ethiopia, March 4, 1912.

Neumann [42] has reviewed the forms of this siskin, and his results, accepted by Sclater,[43] are corroborated by the small series of all four races examined by me in the present study. Ogilvie-Grant [44] considers *kikuyuensis* and *frontalis* as inseparable from *hypostictus*, but in this he seems to be mistaken.

The nominate race occurs from southern Eritrea south across Ethiopia to the Kenya border and the Rendile country.

KEY TO ADULT MALES OF THE RACES OF SPINUS CITRINELLOIDES

a^1. Lores and cheeks gray, not black______________________________ hypostictus
a^2. Lores and cheeks black.
  b^1. A well-defined yellow band on the forehead.
    c^1. Upperparts light; greenish yellowish citrine, narrowly streaked with black____ frontalis
    c^2. Upperparts dark; olive-green, heavily streaked with black_ kikuyuensis
  b^2. No well-defined yellow band on the forehead_______________ citrinelloides

The two specimens collected are in fresh plumage; their dimensions are as follows: Wings, 67, 69; tail, 49, 49; culmen, 11, 11.5; tarsus, 14.5, 15 mm. The Botola specimen is in a subadult plumage. The sequence of plumages of this bird has not yet been worked out, but its apparent complexity may be gathered from van Someren's statement [45] that in *kikuyuensis* the young male molts three time before assuming fully adult plumage.

Lovat, Pease, Antinori, Ragazzi, Neumann, and others have obtained this siskin in various parts of Ethiopia but never in great numbers. It is a bird of the highlands and is therefore absent from much of Gallaland. It seems to be found chiefly in pairs or in mixed flocks of other birds.

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[42] Journ. für Orn., 1905, pp. 355–358.
[43] Systema avium Æthiopicarum, pt. 2, p. 826, 1930.
[44] Ibis, 1913, pp. 579–580.
[45] Nov. Zool., vol. 29, p. 172, 1922.

Erlanger[46] found two nests with eggs at Adis Abeba, one on September 30 and one on October 31. In Kenya Colony, *kikuyuensis* breeds from May to July and in December; in Uganda, *frontalis* nests in May and June and probably later as well.

SPINUS NIGRICEPS (Rüppell)

Serinus nigriceps RÜPPELL, Neue Wirbelthiere zu der Fauna von Abyssinien gehörig, etc., Vögel, p. 96, pl. 34, fig. 2; 1840: Simen Province.

SPECIMENS COLLECTED:

3 males, Adis Abeba, Ethiopia, December 31, 1911–January 9, 1912.
2 males, near Ankober, Ethiopia, January 21, 1912.
5 males, 9 females, Arussi Plateau, Ethiopia, February 15–29, 1912.

The black-headed siskin inhabits only the very high altitudes of Ethiopia from the Simien Mountains south to western Arussi-Gallaland and Shoa.

The present series contains birds in fresh and others in worn plumage, collected at the same time.

This bird is abundant in the cultivated or semiopen areas in the mountains and plateau regions of Shoa and western Arussi-Gallaland, where numbers of specimens have been collected by Lovat, Pease, Ragazzi, Antinori, Neumann, Erlanger, Zaphiro, and others. It seldom occurs below about 8,000 feet and ranges as high as 12,000 feet. Except during the nesting season, the birds remain in large flocks, some of which contain many hundreds of individuals.

Erlanger[47] found nests with eggs near Adis Abeba in September and October.

EMBERIZA POLIOPLEURA (Salvadori)

Fringillaria poliopleura SALVADORI, Ann. Mus. Civ. Genova, vol. 26, p. 269, 1888: Sodde, Shoa.

SPECIMENS COLLECTED:

1 adult male, Wadi Malka, Ethiopia, December 22, 1911.
1 adult male, Iron Bridge, Hawash River, Ethiopia, February 5, 1912.
1 juvenal unsexed, Bodessa, Ethiopia, May 24, 1912.
1 juvenal female, Bodessa, Ethiopia, June 1, 1912.
2 adult males, Tertale, Ethiopia, June 8, 1912.
1 adult male, Wobok, Ethiopia, June 19, 1912.
1 adult male, Saru, Ethiopia, June 19, 1912.
1 adult male, Yebo, Ethiopia, June 21, 1912.
1 adult male (?), south of Lake Stefanie, Kenya Colony, April 17, 1912.
1 adult male, Nyero Mountains, Kenya Colony, July 13, 1912.
6 adult males, 2 juvenal males, 1 adult female, Indunumara Mountains, Kenya Colony, July 13–18, 1912.

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[46] Journ. für Orn., 1907, pp. 32–33.

[47] Ibid., p. 32.

1 adult male, Endoto Mountains, Kenya Colony, July 20, 1912.
2 adult males, Malele, Kenya Colony, July 27, 1912.
1 adult female, 24 miles south of Malele, Kenya Colony, July 29, 1912.

The Somali golden-breasted bunting occurs in British and Italian Somaliland, the Gallaland, Shoa, Sidamo, and Boran districts of Ethiopia, northern Uganda, northern and eastern Kenya Colony, south to the Kilimanjaro district. It is preeminently a bird of rather dry country and does not occur in the highlands. In Ethiopia it has been taken in the Hawash Valley, between Harrar and Adis Abeba, in Arussi-Gallaland, Ennia-Gallaland, Gurraland, Shoa, and Boran; in Kenya Colony it is found in the Teita and Taru districts, thence north through Ukambani to north of Mount Kenya, Lake Baringo, and to the Rendile and Turkana districts. It likewise occurs in Jubaland and throughout Somaliland.

The present series indicate great variation in molting time, as birds in fresh and worn plumages are distributed throughout the same months. Specimens actually in molt were taken in June and July, but a freshly feathered example was collected on February 5 as well.

The young birds have the breast yellowish streaked with brown and, like adult females, have the areas on the sides and top of the head that are black in adult males brown.

The size variations of the adults are as follows: Males—wing, 68–76.5 (average, 72); tail 59.5–71.5 (64.7); culmen, 11–13 (11.7); tarsus, 15–18 (17.3 mm). Females—wings, 69, 74.5; tail, 61.5, 64.5; culmen, 11, 12; tarsus, 16, 18 mm.

Erlanger[48] records the breeding season in northern and also in southern Somaliland as lasting from April to July. He found a large number of nests, chiefly in April and May.

Van Someren has recently[49] obtained nestlings in January at Voi and in May and June at Marsabit.

Mearns noted this bunting in northern Kenya Colony in many places other than those in which he actually collected specimens. The entries in his notebooks are as follows: 10 to 25 miles southeast of Lake Rudolf, July 12, 10 birds seen; Nyero Mountains, July 13, 100; Indunumara Mountains, July 14–18, 200; plains around the Endoto Mountains, July 18–24, 35 birds seen; Er-re-re, July 25, 30 noted; Le-se-dun, July 26, 30 birds; Malele, July 27, 40; 18 miles south of Malele, July 28–29, 50; 25 miles north of Northern Guaso Nyiro River, July 30, 25 birds; Northern Guaso Nyiro River, July 31–August 3, 25 seen; Lekiundu River, August 4–8, 10 birds noted.

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[48] Journ. für Orn., 1907, pp. 33–34.
[49] Nov. Zool., vol. 37, p. 331, 1932.

EMBERIZA HORTULANA Linnaeus

Emberiza hortulana LINNAEUS, Syst. Nat., ed. 10, p. 177, 1758: Europe; Sweden *apud* Hartert.

SPECIMENS COLLECTED:

1 adult male, 1 immature male, 1 immature female, Adis Abeba, Ethiopia, December 30, 1911–January 7, 1912.
2 adult males, Hakaki, Ethiopia, January 14, 1912.
1 adult male, Alaltu, Ethiopia, January 17, 1912.

The ortolan bunting breeds in Europe and winters in northern tropical Africa south to northern Kenya Colony. The species is relatively less numerous in northern Kenya Colony and extreme southern Ethiopia than in the central and northern portions of the latter country. Neumann [50] found it abundant around Adis Abeba in the last days of September but did not see it south of the Hawash River. Zedlitz [51] found it in swarms in the highlands of the Eritrean–Abyssinian border, but not in the lower savannahs. In Darfur, Lynes [52] noted that this bunting arrived from the north in mid-October and left early in March.

Although this bird winters in western Africa, as well as in the eastern side of the continent, the migrations seem to follow an eastern and a western route with a wide gap in between them.

FRINGILLARIA TAHAPISI TAHAPISI (Smith)

Emberiza tahapisi A. SMITH, Report of the expedition for exploring central Africa, p. 48, 1836: Sources of the Vaal River, i. e., southeastern Transvaal.

SPECIMENS COLLECTED:

1 adult female, Gidabo River, Ethiopia, March 17, 1912.
3 adult males, 2 immature males, 5 adult females, Bodessa, Ethiopia, May 22–31, 1912.
1 immature male, Northern Guaso Nyiro River, Kenya Colony, August 3, 1912.
2 adult males, 2 adult females, Tana River at mouth of Thika River, Kenya Colony, August 23–24, 1912.

I have seen no material of the north Ethiopian race *septemstriata* and therefore can not tell whether the Gidabo River specimen approaches that form. I feel confident that it is best referred to *tahapisi*, as it agrees very closely with the rest of the series. The northern race is said to have much rufous on the inner web of the first primary, but the Gidabo River bird has none, thereby agreeing with the more southern ones.

The arrangement of subspecies and their ranges as given by Sclater [53] is substantiated by the material available for study. It is rather strange that typical *tahapisi* should cover so enormous a territory and then, in the northeastern corner of its range, suddenly differentiate into three valid races.

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[50] Journ. für Orn., 1905, p. 358.
[51] Journ. für Orn., 1911, p. 42.
[52] Ibis, 1924, p. 684.
[53] Systema avium Æthiopicarum, pt. 2, p. 831, 1930.

The present series contains specimens in worn and in fairly fresh plumage collected at the same time. The size variations of the adult birds are as follows: Males—wing, 72–79 (average, 70.3); tail, 57–63 (61.1); culmen, 9–10 (9.5); tarsus, 16–17 (16.3 mm). Females—wing, 71–80 (73.6); tail, 54–62.5 (57.7); culmen, 9–10 (9.6); tarsus, 15.5–17 (16.4 mm).

The cinnamon-breasted rock-bunting is a denizen of the lower areas, especially the semiarid rocky and scrub country. Nothing appears to have been recorded as to the breeding season in Ethiopia, but the northern form *septemstriata* has been found in breeding condition in June.

On the Tana River, August 18–26, Mearns noted about 350 of these finches.

FRINGILLARIA STRIOLATA SATURATIOR Sharpe

Fringillaria saturatior Sharpe, Bull. Brit. Orn. Club, vol. 11, p. 47, 1901: Lake Stefanie.

Specimens collected:

2 adult males, 6 immature males, 1 adult female, 1 immature unsexed, Chaffa, Ethiopia, June 24–25, 1912.
5 adult males, 4 immature males, 1 adult female, Dussia, Kenya Colony, July 3–4, 1912.
1 immature male, 1 immature unsexed, east of Lake Rudolf, Kenya Colony, July 5, 1912.
1 immature male, 1 adult female, southeast of Lake Rudolf, Kenya Colony, July 11–12, 1912.

The Abyssinian house bunting is said by Sclater[54] to inhabit the "highlands of the Red Sea Province, Eritrea, Abyssinia, Somaliland, and Yemen." The present specimens extend the known range southward to the southeastern end of Lake Rudolf and thereby add the species to the avifauna of Kenya Colony. It is somewhat misleading to say that this bird lives only in the highlands, as none of the present localities is very high above the sea, and neither is the type locality one of great altitude. In the Red Sea Province it is a highland form.

This bird seems to be somewhat scarce in Ethiopia as it has been overlooked or not met with by many collectors, such as Lovat, Pease, Zaphiro, Neumann, and Erlanger.

The present specimens are all in worn plumage and seem to have finished breeding not more than a few weeks before they were collected, late in June and early in July. The size variations of the adults are as follows: Males—wing, 71–74.5 (average, 72.8); tail, 51–

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[54] Systema avium Æthiopicarum, pt. 2, p. 832, 1930.

55 (63); culmen, 10–11 (10.2); tarsus, 14–16.5 (15.4 mm). Females—wing, 71–71.5 (71.3); tail, 51–54.5 (53); culmen, 10 each; tarsus, 15–16 (15.3 mm).

Very little is known of the habits of the Ethiopian subspecies of the house bunting, but in Darfur Lynes[55] found the race *jebelmarrae* breeding in early winter.

Mearns noted this bird as follows: Gidabo River, March 15–17, 40 birds seen; Black Lake Abaya, March 21–23, 4 noted; Anole village, May 18, 10 seen; Bodessa, May 19–June 6, 1,000; Sagon River, June 6, 20; Tertale, June 7–12, 12 seen; El Ade, June 12, 4 birds; Wobok, June 18, 1 noted; Chaffa villages June 24–25, 500; 18 miles southwest of Hor, July 1–2, 500; Dussia, July 3–4, 500 birds seen.

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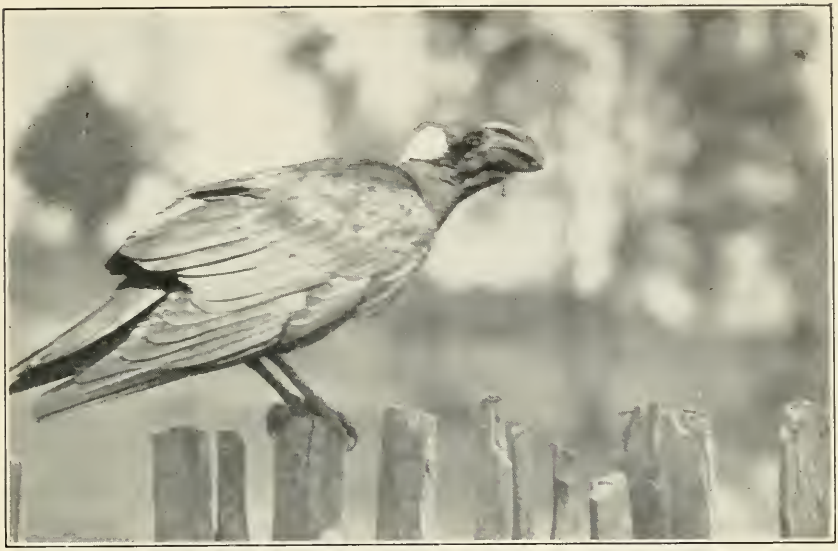
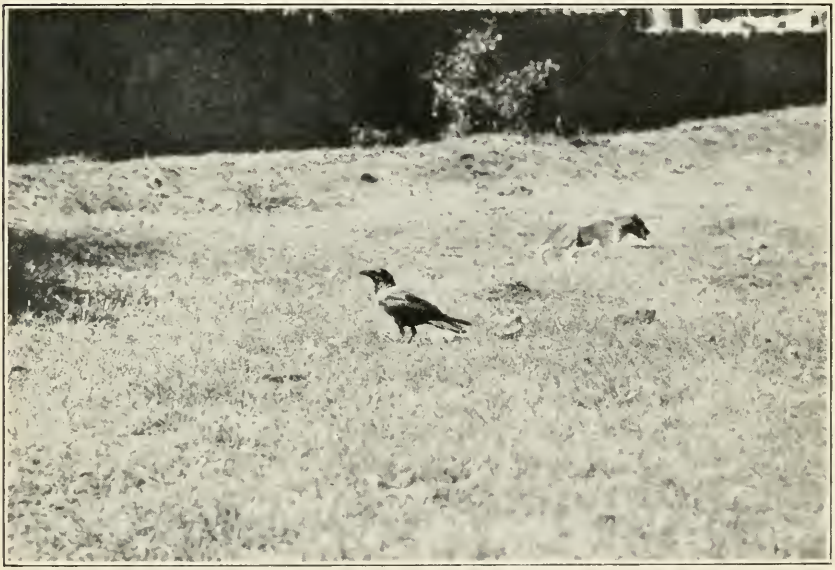
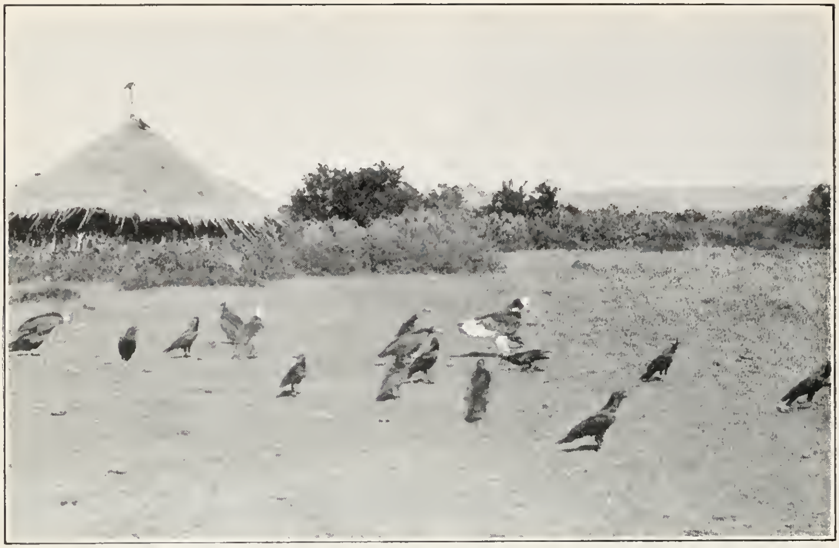
[55] Ibis, 1924, pp. 680–681.



THICK-BILLED RAVEN (CORVULTUR CRASSIROSTRIS).
Adis Abeba. Photograph by A. M. Bailey.

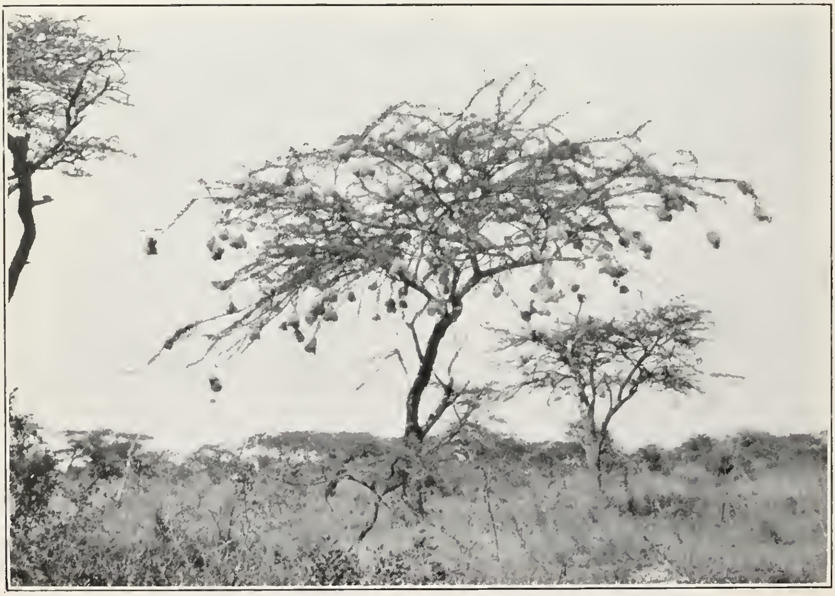


PIED CROW (CORVUS ALBUS).
Adis Abeba. Photograph by A. M. Bailey.



RAVENS (CHIEFLY RHINOCORAX RHIPIDURUS) AND VULTURES (TRIGONOCEPS OCCIPITALIS AND NECROSYRTES MONACHUS PILEATUS).

Arussi-Gallaland. Photograph by A. M. Bailey.



COLONY OF NESTS OF WEAVERBIRDS (PLOCEUS SP.).

Arussi-Gallaland. Photograph by A. M. Bailey.

OPEN RIDGE ON CHILALO MOUNTAIN.
11,000 feet, Arussi-Gallaland. Photograph by A. M. Bailey.

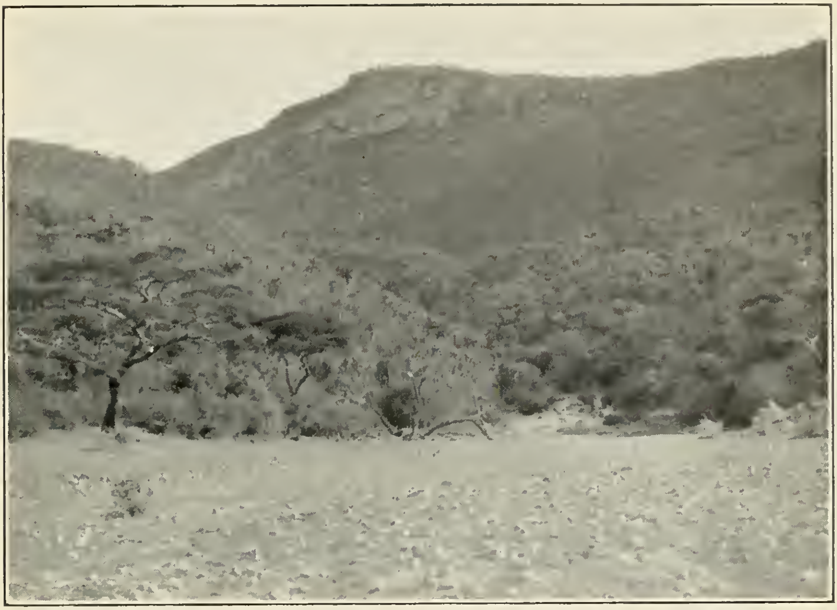
MOUNTAIN HEATHER ON MOUNT ALBASSO.
10,000 feet, Arussi-Gallaland. Photograph by A. M. Bailey.

EUPHORBIAS AND HEAVY MIXED FOREST.

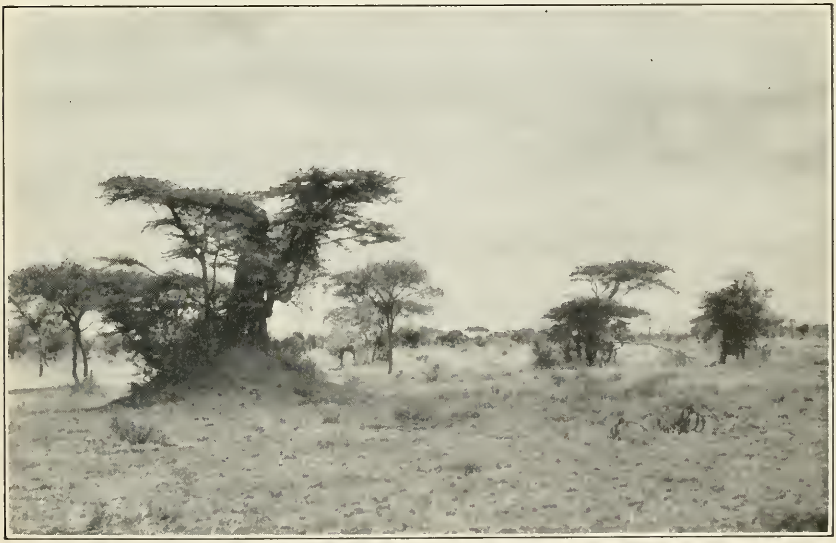
Sidamo. Photograph by W. H. Osgood.

EUPHORBIAS AND ACACIAS.

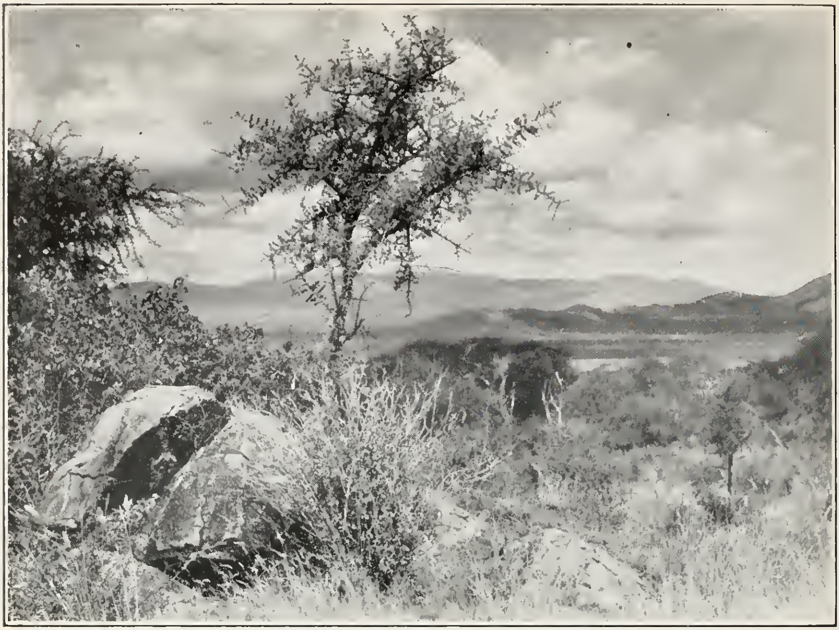
Sidamo. Photograph by W. H. Osgood.



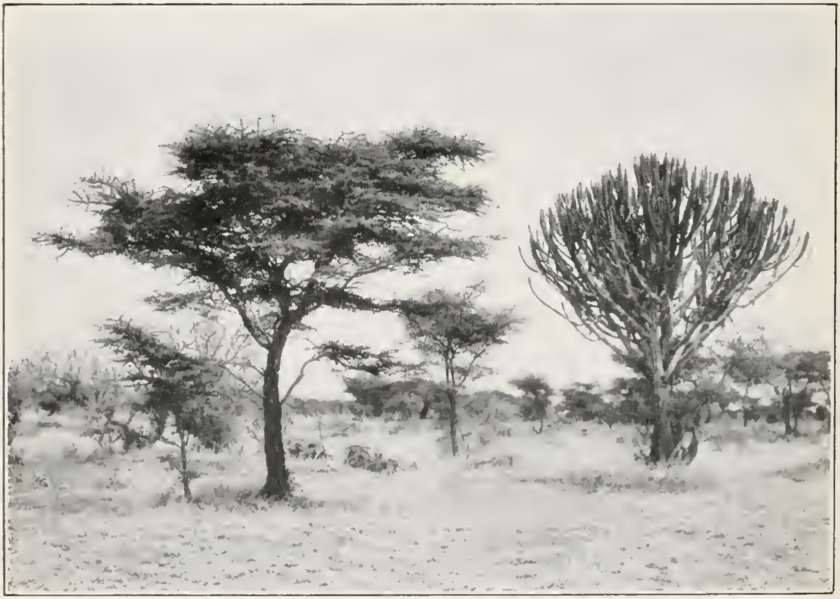
NEAR SAGON RIVER, BORAN.
Photograph by C. J. Albrecht.



VIEW IN LOWER BORAN.
Photograph by C. J. Albrecht.



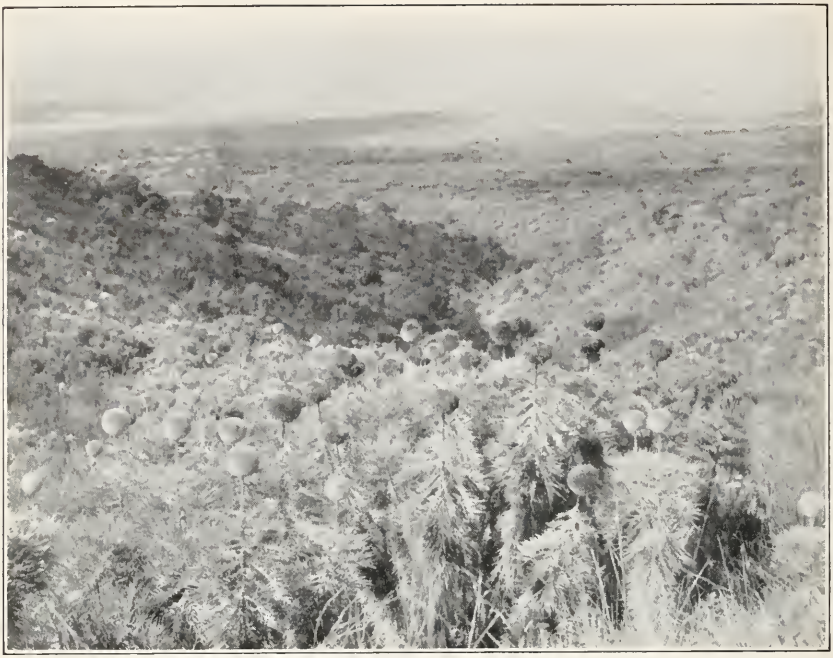
LOWER BORAN, EAST OF LAKE STEFANIE.
Photograph by C. J. Albrecht.



VIEW OF LOWER BORAN.
Photograph by C. J. Albrecht.

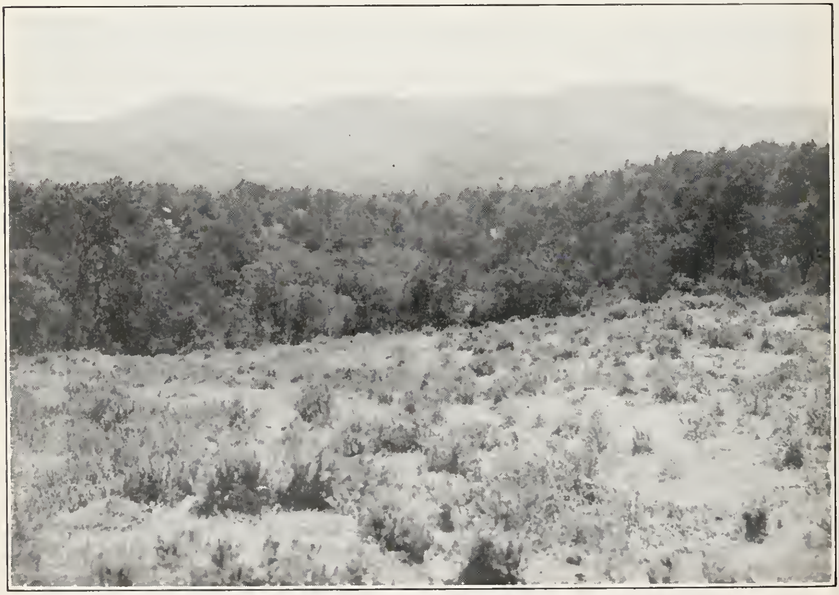
VIEWS EAST OF LAKE STEFANIE, BORAN.

Photographs by C. J. Albrecht.



LOOKING EAST FROM SLOPES OF MOUNT CHILALO.

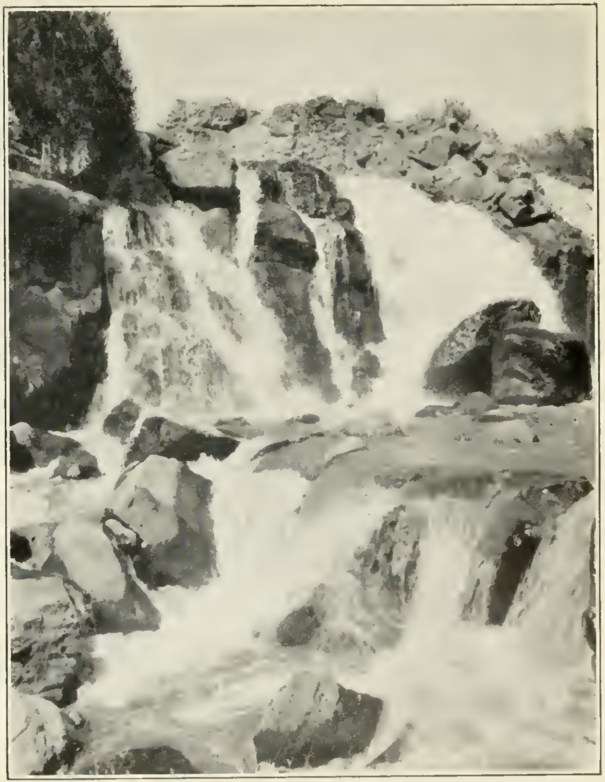
About 9,000 feet; giant "thistles" (*Echinops*) in foreground. Photograph by W. H. Osgood.



VIEW IN THE MOUNT KAKA REGION.

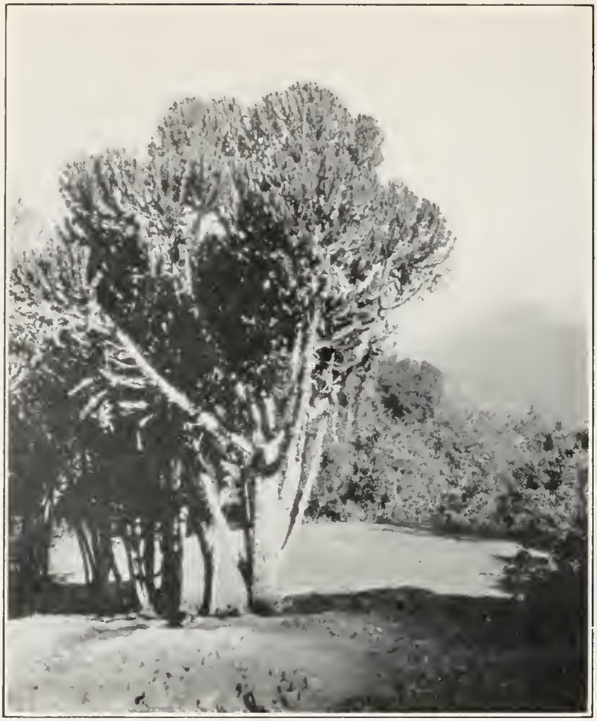
East of Lake Shala, Arussiland. Photograph by C. J. Albrecht.

Large Acacias near Hawash Station.

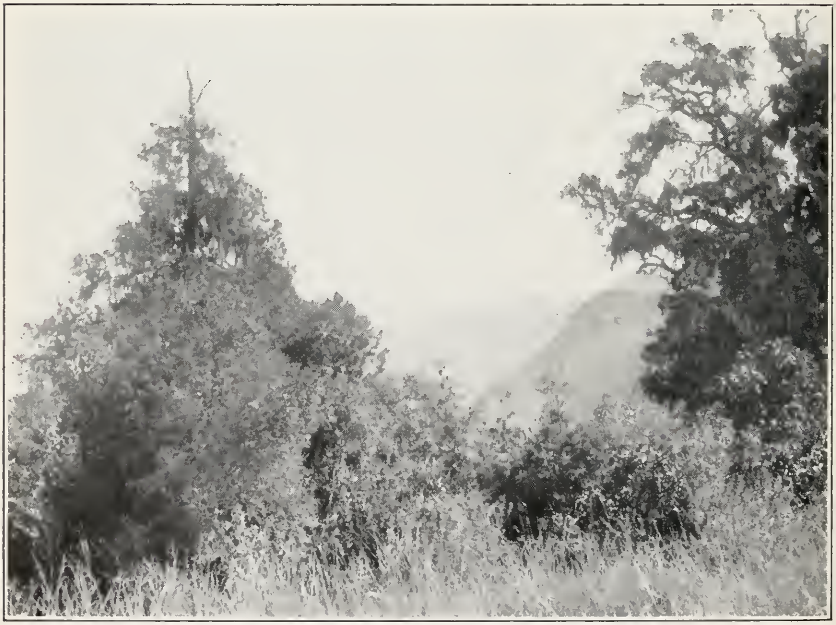


Falls of Davies River near Hawash Station.

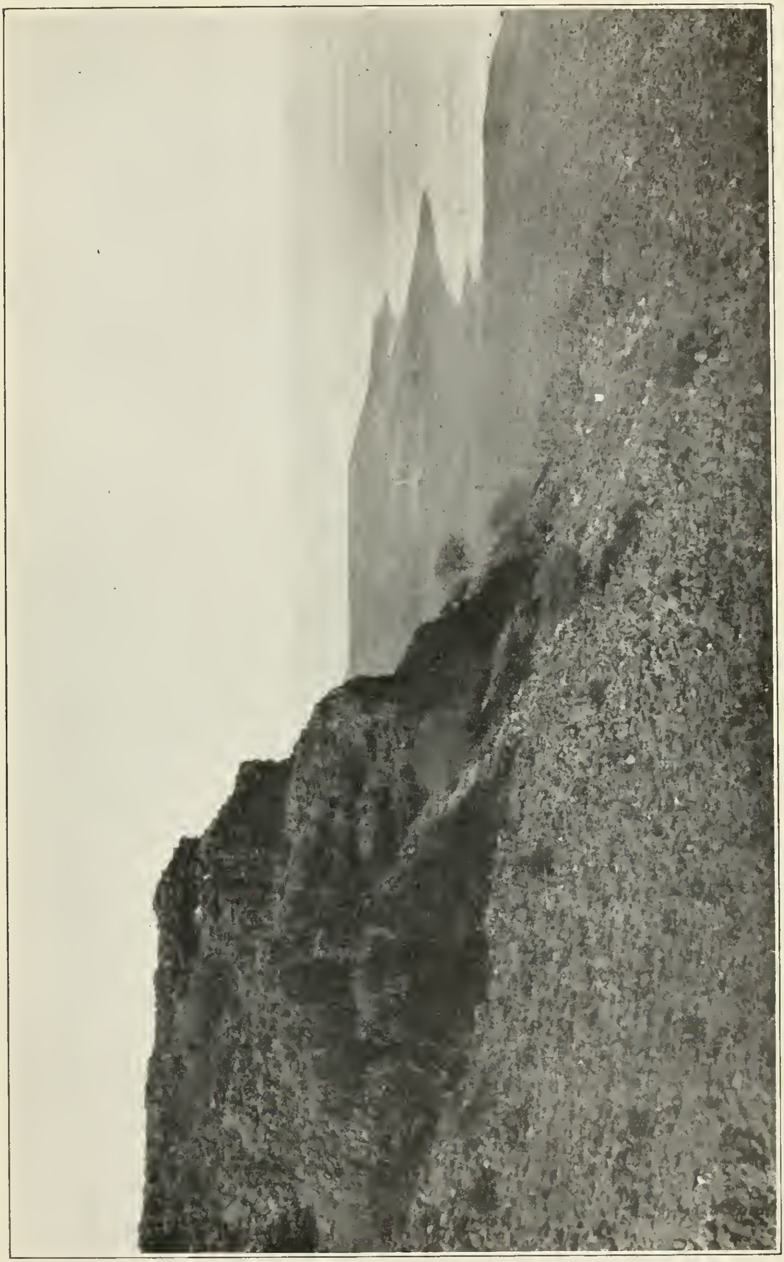
Photographs by A. M. Bailey.



EUPHORBIAS IN VALLEY OF WEBI SHEBELLI.
Arussi-Gallaland. Photograph by A. M. Bailey.

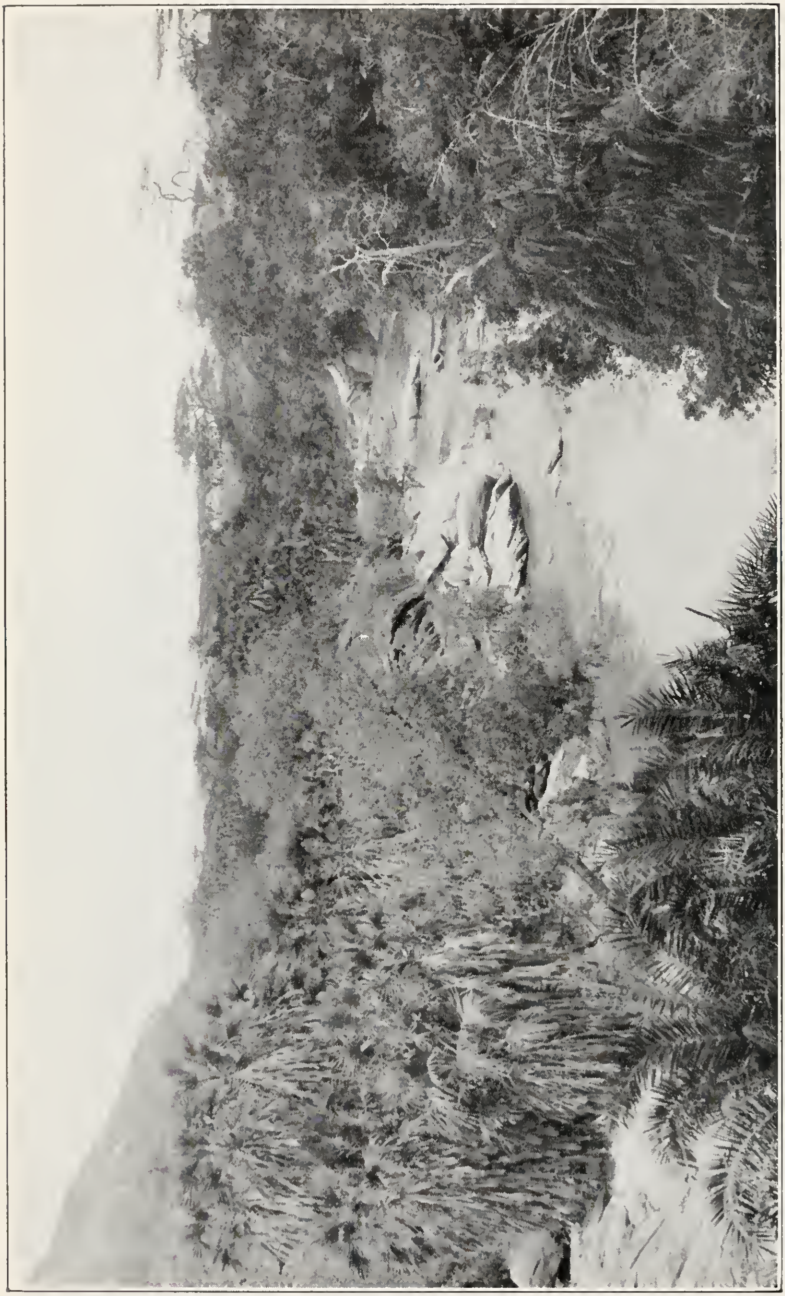


WOODED SLOPES OF UPPER WEBI SHEBELLI.
Arussi-Gallaland. Photograph by A. M Bailey.



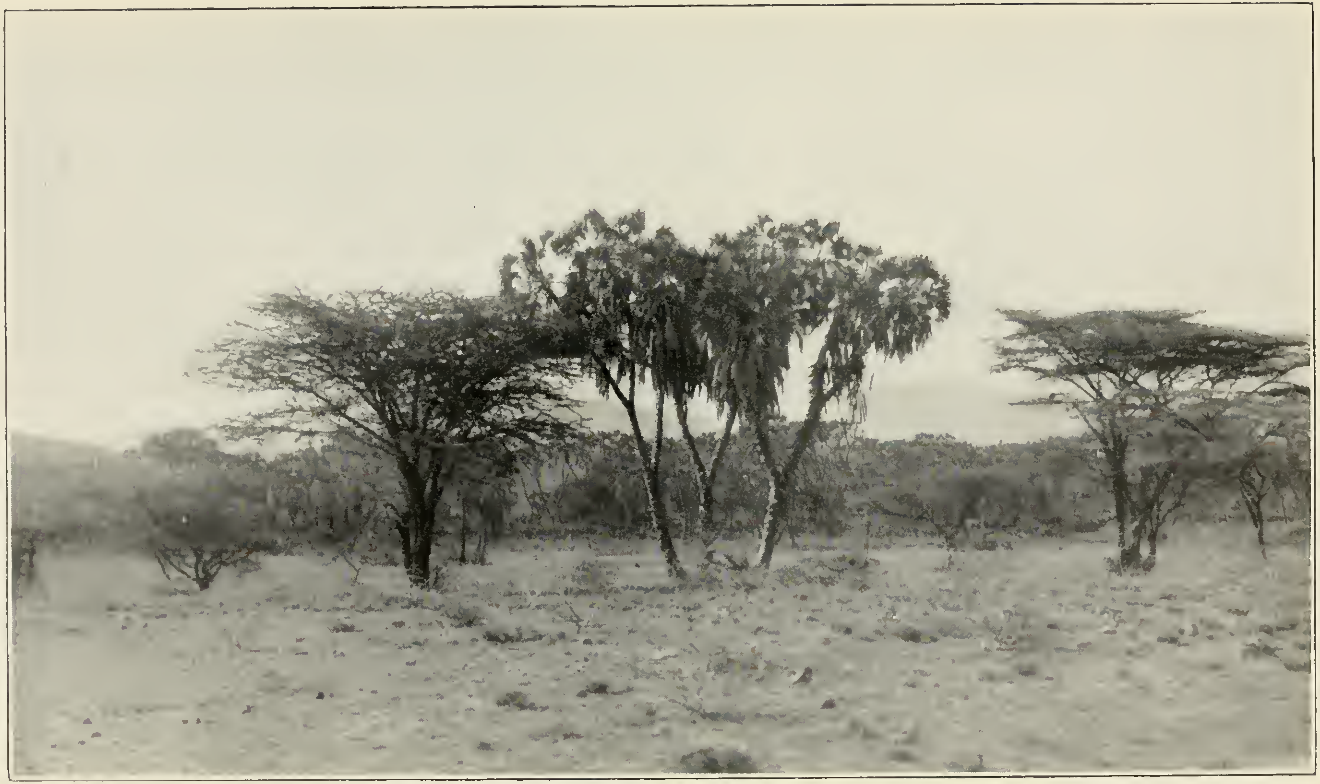
EAST SHORE OF LAKE RUDOLF NEAR SOUTHERN END.

Photograph by A. B. Fuller,



NORTHERN GUASO NYIRO RIVER, 21 MILES EAST OF ARCHERS POST.

Photograph by A. B. Fuller.



Looking South from South Bank of Northern Guaso Nyiro River.

Photograph by A. B. Fuller.

INDEX

(Principal references are given in boldface figures)

abaya, Cisticola robusta, 204.
abayensis, Lagonosticta senegala, 445–**447**.
  Ploceus ocularius, **408**, 409.
  Sylvietta whytii, 2, 181–**184**.
abdominalis, Eremomela flaviventris, 190.
  Eremomela griseoflava, 3, 187, 188, **190**, **191**.
abessinica, Camaroptera brevicaudata, **191**–195.
  Camaroptera griseoviridis, 191.
abessinicus, Eremialector lichtensteinii, 8.
abyssinica, Coliuspasser albonotatus, 429.
  Drymophila, **101**.
  Hirundo, **50**.
  Hirundo abyssinica, **50**, 51.
  Loxia, 406.
  Lusciniola, 166.
  Zosterops, 374.
abyssinicus, Bradypterus brachypterus, 3, **166**, 167.
  Buceros, 6.
  Coracias, **6**.
  Dendropicos, 14.
  Ploceus cucullatus, **406**.
  Pseudoalcippe abyssinicus, 14, **101**, 102.
  Sporopipes frontalis, 395–397.
  Turdus, 127.
  Turdus olivaceus, 14, **127**, 128.
  Zosterops abyssinicus, 374.
Acryllium vulturinum, 3.
adamauae, Prionops poliocephalus, 316.
adsimilis, Dicrurus adsimilis, 62.
adusta, Alseonax adusta, 218.
Aegithalus musculus, 90.
aeneocephalus, Lamprotornis purpuropterus, 335.
aeneus, Tangavius aeneus, 311.
aequatorialis, Apalis flavida, 176, 177.
  Chalcomitra senegalensis, 363.
aethiopica, Amblyospiza albifrons, 412–414.
  Hirundo, **43**.
  Platysteira cyanea, **242**.
  Quelea quelea, **415**–417.
aethiopicus, Eurystomus afer, 14.
  Laniarius, 280, 282.
  Laniarius ferrugineus, **280**, 281, 283.
  Ploceus, 415.
  Turdus, 280.
afer, Cinnyris, 363.
  Nilaus, 326, 328.
affinis, Corvus, 81.
  Dryoscopus, 284.
  Poliospiza striolata, 471, 472.
  Prinia mistacea, 214.
  Pytilia melba, 440, 441.
afra, Fringilla, 439.
  Pytilia, 3, **439**.
africana, Luscinia megarhyncha, 2, **159**.
  Lusciola, 159.
africanoides, Mirafra, 6.
africanus, Francolinus, 6, 14.
Agapornis pullaria, 14.
  taranta, 11, 14.
Agrobates galactotes, 7.
aguimp, Motacilla aguimp, 247.
Aidemosyne cantans meridionalis, 434.
airensis, Cercomela melanura, 138.
Alaemon, 7.
  alaudipes alaudipes, 28.
  alaudipes desertorum, **28**.
  alaudipes meridionalis, 28.
  alaudipes omdurmanensis, 28.
Alauda arvensis, 38.
  arvensis arvensis, 38.
  arvensis ruficeps, 38.
  desertorum, 28.
  poecilosterna, 25.
  praetermissa, 30.
  ruficeps, 38.
Alaudidae, 15.
alaudipes, Alaemon alaudipes, 28.
alba, Motacilla, 246.
alba alba, Motacilla, **246**, 247.
albicauda, Mirafra, 2, 16, **17**.
albicollis, Corvultur, **78**, **79**.
  Corvus, 78.
albicrissalis, Bradypterus alfredi, 170, 171.
albifrons, Eremopteryx albifrons, 34, 35.
  Platysteira cyanea, 242.
albiscapulata, Saxicola, 144.
  Thamnolaea cinnamomeiventris, 143, **144**, 145.
albiventris, Alseonax minimus, 218.
  Camaroptera brevicaudata, 194
  Cinnyris venustus, 357, 358.
  Parus, 87.
  Parus albiventris, **87**.
albofasciata, Saxicola, 147.
  Saxicola torquata, 146, **147**.
albonotatus, Coliuspasser albonotatus, 429.

albus, Corvus, 72–74, 80.
Alethe, 12.
alexanderi, Amadina fasciata, **437**.
  Eremomela griseoflava, 186–188.
alfredi, Bradypterus alfredi, 170.
alinderi, Nectarinia reichenowi, 351.
alleni, Cisticola cinereola, 208, 209.
  Ploceus, 410.
Allocotops calvus, 329.
alopex, Mirafra, 24, 25.
alpina, Seicercus, 163, 164.
Alseonax adusta adusta, 218.
  adusta angolensis, 218.
  adusta fülleborni, 218.
  adusta subadusta, 218.
  caerulescens kikuyuensis, 220.
  minimus albiventris, 218.
  minimus djamdjamensis, 217–219.
  minimus grotei, 218.
  minimus interpositus, 220.
  minimus kumboensis, 218.
  minimus marsabit, 220.
  minimus minimus, 218, 219.
  minimus murinus, 218–220.
  minimus neumanniana, 218, 219.
  minimus obscurus, 218.
  minimus okuensis, 218.
  minimus pumilus, 218–220.
  minimus roehli, 218, 219.
  minimus subtilis, 218.
  murinus djamdjamensis, 217, 218.
  poensis. 218.
alter, Cinnyrus habessinicus, 352, 353.
altirostris, Galerida, 29.
altumi, Bradypterus, 166, 171.
Amadina fasciata alevanderi, **437**.
  fasciata candida. 437.
  marginalis, 437.
amaurora, Melocichla mentalis, 209, 210.
ambigua, Cisticola robusta, 204.
ambiguus, Laniarius ferrugineus, 281, 282.
Amblyospiza albifrons aethiopica, 412–414.
  albifrons melanota, 413.
  albifrons montana, **412–414**.
  albifrons unicolor, 412, 413.
Ammomanes, 5.
Ampelis phoenicea, 58.
Amydrus ruppellii, 340.
  walleri, 338.
Anaplectes blundelli, 415.
  melanotis, **414**, 415.
anderssoni, Oriolus auratus, 65.
  Tephrocorys, 39.
Andropadus, 12.
  eugenius, 122.
  fricki, 121.
  fricki kitungensis, 122.
  insularis fricki, 2, 3, **121**, 122.
  insularis kilimandjaricus, 121.
  insularis kitungensis, 121, **122**.
  insularis oleaginus, 122.
  insularis somaliensis, 121, 122.
  insularis subalaris, 121, 122.
angolensis, Alseonax adusta, 218.
  Euplectes capensis, 423.
  Fringilla, 471.
  Hirundo, 42.
anguitimens, Eurocephalus, 322.
ansorgei, Pomatorhynchus australis, 288.
  Pseudoalcippe abyssinicus, 102.
Anthoscopus caroli rothschildi, 3, **89**.
  caroli sylviella, 89.
  musculus, **90**.
  musculus guasso, 90.
  rothschildi, 89.
  sharpei, 89.
Anthreptes collaris, 367.
  collaris elachior, 367.
  collaris garguensis, 367.
  collaris jubaensis, 367.
  collaris teitensis, 367.
  collaris ugandae, **367**.
  longuemarei haussarum, 368.
  neumanni, 368.
  orientalis, 367, 368.
  orientalis barbouri, 368.
  orientalis orientalis, **367**–369.
Anthus campestris, 251.
  campestris campestris, **251**.
  cervinus, 251.
  cinnamomeus, 253.
  gouldii omoensis, 255.
  gouldii turneri, **254**, 255.
  latistriatus, 252, 253.
  leucophrys omoensis, **255**.
  leucophrys zenkeri, 255.
  nicholsoni, 6, 251, 253.
  nicholsoni hararensis, **251**, 252.
  nicholsoni longirostris, 252.
  nicholsoni neumannianus, **252**, 253.
  nicholsoni nivescens, 8.
  nicholsoni nyassae, 252.
  raaltenii, 253.
  richardi cinnamomeus, **253**.
  richardi lacuum, 253, 254.
  rufogularis. **256**.
  rufulus, 253.
  saphiroi, 255.
  sordidus, 251, 252.
antinorii, Lanius, 265, 267, 268.
  Psalidoprocne, **56**.
Apalis, 12.
Apalis cinerea cinerea, **173**, 174.
  cinerea granviki, 173, 174.
  cinerea minor, 173, 174.
  cinerea sclateri, 174.
  flavida aequatorialis, 176, 177.
  flavida flavocincta, 175–177.
  flavida golzi, 176, 177.
  flavida malensis, 8, 176, **177**.
  flavida neumanni, 176, 177.
  flavida viridiceps, 8, 176, 177.
  flavigularis, 177.
  malensis, 177.
  minor, 173.
  pulchra, 177.
  ruwenzorii, 177.
  thoracica, 177.

approximans, Archolestes, 307.
  Euplectes capensis, 425.
  Malaconotus poliocephalus, **307–309**.
Aquila verreauxi, 3, 14.
arabica, Ptyonoprogne obsoleta, 54, 55.
  Streptopelia roseogrisea, 2.
arabs, Choriotis arabs, 3.
  Ploceus galbula, 411.
archeri, Buteo rufofuscus, 7.
  Eremomela griseoflava, 8, 186–188.
Archolestes approximans, 307.
Ardeola ralloides, 3.
arenicola, Galerida, 31.
argentea, Cisticola natalensis, 204.
  Oenanthe, 134.
argenticeps, Philemon, 329.
Argya aylmeri, 100.
  aylmeri aylmeri, 3, **100**, 101.
  aylmeri mentalis, 100, 101.
  keniana, 100, 101.
  loveridgei, 100, 101.
  rubiginosa emini, 97.
  rubiginosa heuglini, 97.
  rubiginosa rubiginosa, **96–99**, 101.
  sharpei, 98.
  sharpii, 97.
Arizelocichla, 12.
  bamendae, 119.
  schubotzi, 119.
  tephrolaema kikuyuensis, **119**.
  tephrolaema tephrolaema, 119.
  usambarae, 119.
armenus, Pomatorhynchus senegalus, 290, 291, 293, 294.
arnaudi, Pseudonigrita arnaudi, 383, 384.
arsinoe, Pycnonotus, 112.
  Pycnonotus barbatus, 112, 113.
arturi, Nectarinia kilimensis, 347.
arvensis, Alauda, 38.
  Alauda arvensis, 38.
ascensi, Macronyx, 259.
aschani, Camaroptera brevicaudata, 194.
atactus, Dicrurus adsimilis, 62.
ater, Turdoides hartlaubi, 93.
athi, Mirafra africana, **21**, 24.
Atimastillas, 12.
atricapilla, Motacilla, 160.
  Sylvia atricapilla, **160**.
atriceps, Pseudoalcippe, 103.
atrocoeruleus, Laniarius funebris, 277.
atrogularis, Linaria, 471.
  Poliospiza atrogularis, 471.
aucheri, Lanius excubitor, 262.
aucupum, Steganura, 465.
aurantiigula, Macronyx, 3, **259**, 260.
auratus, Oriolus auratus, 65, 66.
aureoflavus, Ploceus, 411.
aurifrons, Zosterops senegalensis, 370.
axillaris, Pratincola, 146.
  Saxicola torquata, 146, 147.
  Urobrachya axillaris, 428.
aylmeri, Argya, 100.
  Argya aylmeri, 3, **100**, 101.
babaeculus, Bradypterus, 166, 170.
badius, Lanius senator, 274.
bafirawari, Bradornis, 8, 223–225.
baglafecht, Loxia, 399.
  Ploceus baglafecht, 14, **399**.
bairdii, Prinia, 216.
bambarae, Thamnolaea cinnamomeiventris, 143.
bamendae, Arizelocichla, 119.
barakae, Parus, 84.
  Parus afer, 3, 82–84.
barbouri, Anthreptes orientalis, 368.
barratti, Bradypterus, 166, 170.
Batis bella, 237.
  minor chadensis, 238, 239.
  minor erlangeri, **237–239**.
  minor minor, 238.
  minor nyansae, 238, 239.
  minor suahelicus, 238.
  molitor littoralis, 236.
  molitor molitor, 236, 237.
  molitor montana, 236.
  molitor puella, **236**, 237.
  molitor soror, 236, 237, 240.
  molitor taruensis, 236.
  orientalis, 239.
  orientalis bella, **239**, 240.
  orientalis minor, 242.
  orientalis orientalis, 240.
  orientalis somaliensis, 237, 239, 241.
  perkeo, 238, **240–242**.
  puella, 236.
  soror pallidigula, 236, 240.
bella, Batis, 237.
  Batis orientalis, **239**, 240.
  Pachyprora, 239.
belli, Pytilia, 441, 443.
bengalus, Uraeginthus bengalus, 456.
benguellensis, Bradypterus brachypterus, 166, 167.
bergeri, Laniarius, 276.
Bessornis intercedens, 152.
bicolor, Laniarius ferrugineus, 281.
  Speculipastor, 3, **332**.
blanchoti, Malaconotus poliocephalus, 308, 309.
blanfordi, Laniarius, 293.
  Psalidoprocne, 56.
  Tephrocorys, 39, 40.
Bleda, 12.
blicki, Cinnyris venustus, 2, 3, **356–359**.
blundelli, Anaplectes, 415.
blythii, Onychognathus, 8.
bodessa, Cisticola chiniana, 2, 199, **200**, 201.
  Cisticola subruficapilla, 200.
boehmi, Dinemellia dinemelli, 378.
böhmi, Eurocephalus rüppelli, 323.
  Lanius excubitorius, 272.
bojeri, Hyphantornis, 410.
  Ploceus, 3, **410**, 411.
Bostrychia carunculata, 11, 14.
bottae, Oenanthe, 6, 136.
bottegi, Francolinus castaneicollis, 12.
bowdleri, Bradornis pallidus, 223, 225.
brachypterus, Bradypterus brachypterus, 166, 167, 170.

brachyura, Camaroptera, 192.
Bradornis, 222.
  bafirawari, 8, 223-225.
  grisea, 224.
  griseus, 225.
  griseus erlangeri, 226.
  griseus neumanni, 224.
  microrhynchus, 223.
  microrhynchus erlangeri, 223, 225, **226**-228.
  microrhynchus microrhynchus, 223, **225.**
  microrhynchus pumilus, 223, 225, 226, **228.**
  microrhynchus taruensis, 223, 225.
  murinus suahelicus, 228.
  nigeriae, 223.
  pallidus, 223.
  pallidus bowdleri, 223, 225.
  pallidus granti, 223-225.
  pallidus modestus, 225.
  pallidus murinus, 224, 225, 228.
  pallidus pallidus, 223-228.
  pallidus suahelicus, 224, 225, **228.**
  pallidus subalaris, 223–225.
  parvus, 224.
  sylvia, 223.
  tessmanni, 223.
Bradyornis fischeri, 229.
  microrhynchus, 225.
  muscicapina, 224.
  pumilus, 228.
Bradypterus alfredi albicrissalis, 170, 171.
  alfredi alfredi, 170.
  alfredi fraterculus, 2, 3, 166, **170,** 171.
  alfredi nyassae, 170, 171.
  alfredi roehli, 170.
  alfredi sjöstedti, 170, 171.
  alfredi usambarae, 170, 171.
  altumi, 166, 171.
  babaeculus, 166, 170.
  babaeculus fraterculus, 170.
  barratti, 166, 170.
  brachypterus abyssinicus, 3, **166,** 167.
  brachypterus benguellensis, 166, 167.
  brachypterus brachypterus, 166, 167, 170.
  brachypterus centralis, 166, 167.
  cinnamomeus, 167–169.
  elgonensis, 168.
  salvadorii, 168.
  transvaalensis, 166.
brevicaudata, Camaroptera, 191, 192.
brevicaudata brevicaudata, Camaroptera, 192, 193.
brevicaudus, Lamprotornis purpuropterus, 335, 336.
brevipes, Monticola, 132.
brubru, Nilaus, 326.
brubru brubru, Nilaus, 327.
brunneiceps, Erythropygia leucoptera, 155.
  Lagonosticta, 445.
  Lagonosticta senegala, **445–447.**
brunneigularis, Uraeginthus bengalus, 455-**457.**
brunnescens, Cisticola, 198.
brunnescens brunnescens, Cisticola, **198,** 463.
Bubalornis albirostris intermedius, **376.**
  albirostris scioanus, 376, 377.
Buceros abyssinicus, 6.
budongoensis, Ploceus emini, 401.
  Seicercus, 164.
Budytes feldegg feldegg, **250.**
  feldegg superciliaris, 250.
  flavus cinereocapilla, **249.**
  flavus flavus, **249.**
  kaleniczenskii, 250.
Buphagus erythrorynchus caffer, 345, **346.**
  erythrorynchus erythrorynchus, 345, 346.
Burnesia, 216, 217.
Buteo rufofuscus archeri, 7.
cabanisi, Lanius, **270.**
  Nigrita, 385.
  Pseudonigrita, **385.**
caecus, Otus senegalensis, 2, 3.
caerulescens, Cichlomyia, 231.
  Hypodes cinereus, 221.
caesia, Graucalus caesia, 60, 61.
caffer, Buphagus erythrorynchus, 345, **346.**
caffra, Cossypha, 150.
  Cossypha caffra, 152.
Calamocichla schillingsi, 116.
Calamoherpe gracilirostris, 166.
Calamonastes simplex, **171,** 172.
  simplex erlangeri, 172.
  simplex hilgerti, 172.
Calamornis gracilirostris, 166.
calvus, Allocotops, 329.
Camaroptera brachyura, 192.
  brachyura pileata, 193.
  brevicaudata, 191, 192.
  brevicaudata abessinica, **191**–195.
  brevicaudata albiventris, 194.
  brevicaudata aschani, 194.
  brevicaudata brevicaudata, 192, 193.
  brevicaudata erlangeri, 192-194.
  brevicaudata griseigula, 191-**195.**
  brevicaudata pileata, 193.
  griseigula, 195.
  griseiventris, 191.
  griseoviridis abessinica, 191.
  superciliaris, 192.
  toroensis, 192.
cameroonensis, Lanius collaris, 263.
  Pomatorhynchus senegalus, 294.
camerunensis, Telophonus senegalus, 293.
Campephaga flava, 57.
  flava flava, **57,** 58.
  flava petiti, **57,** 58.

Campephaga hartlaubii, 57.
  nigra, 57, 58.
  phoenicea, 57, **58**, 59.
  quiscalina, 58.
  rothschildi, 57, 59.
  xanthornoides, 57, 59.
Campephagidae, 57.
campestris, Anthus, 251.
  Anthus campestris, **251**.
candida, Amadina fasciata, 437.
  Mirafra, 2, 3, 16, **19**.
caniceps, Odontospiza, 2, **436**.
  Pitylia, 436.
  Sigmodus, 321.
cantillans, Mirafra, 16, 19.
capensis, Corvus, 75.
  Corvus capensis, **75**, 76.
  Tringa caruncul ata, 328.
capicola, Streptopelia, 6.
Caprimulgus stellatus simplex, 3.
cardinalis, Quelea cardinalis, 418–420.
Carine noctua somaliensis, 2, 8.
carlo, Lagonosticta, 445.
carolinensis, Sitta, 237.
caruncul ata, Bostrychia, 11, 14.
  Paradigalla, 329.
castaneiceps, Ploceus, 411.
castaneicollis, Francolinus, 14.
castanopterus, Passer castanopterus, 387.
catharoxanthus, Malaconotus poliocephalus, 307–309.
cathemagmenus, Rhodophoneus cruentus, 310, 311.
catholeucus, Pomatorhynchus senegalus, 289, 295.
  Telophonus senegalus, 293.
centralis, Bradypterus brachypterus, 166, 167.
  Chlorocichla, 120.
  Chlorocichla flaviventris, **120**, 121.
  Estrilda rhodopyga, 451, **452**.
  Pytilia, **441**.
  Quelea quelea, 417.
  Turdus libonyanus, **124–126**.
  Turdus pelios, 124.
Centrites niger, 251.
Cercomela dubia, 3, 12, **140**.
  melanura airensis, 138.
  melanura erlangeri, 138.
  melanura lypura, 8, **137**, 138, 140.
  scotocerca enigma, 12, 140.
  scotocerca turkana, **138**, 139.
  turkana, 138.
Cercotrichas melanoptera, 158.
  podobe podobe, 3, **158**.
Ceropsis melanocrissus, 45.
Certhia tacazze, 346.
Certhilauda, 5, **17**.
cerviniventris, Phyllastrephus cerviniventris, 118, 119.
cervinus, Anthus, 251.

chadensis, Batis minor, 238, 239.
  Mirafra cantillans, 15.
  Pomatorhynchus senegalus, 294, 296.
  Tschagra senegala, 293.
Chalcomitra cruentata, 3, 363–**365**.
  gutturalis, 363.
  hunteri, 363, **364**, 366.
  scioana, 365.
  senegalensis aequatorialis, 363.
  senegalensis inaestimata, 363.
  senegalensis lamperti, **363**.
chalybeus, Lamprotornis, 333.
  Lamprocolius chalybeus, **333**, 334.
changamwensis, Euplectes hordeacea, 420.
Charadriola singularis, 256, 258.
Charitillas, 12.
charmosyna, Estrilda charmosyna, **453**.
  Habropyga, 453.
Chasmorhynchus, 329.
cheniana, Mirafra, 16.
chloris, Nicator chloris, 314, 315.
Chlorocichla centralis, 120.
  flaviventris centralis, **120**, 121.
  flaviventris meruensis, 120, 121.
  flaviventris mombasae, 120, 121.
chloronota, Sylvietta leucophrys, 186.
Chloropeta kenya, 234, 235.
  massaicus, 235.
  natalensis similis, **234**, 235.
  schubotzi, 234.
  similis, 234.
Chlorophoneus sulfureopectus fricki, 2, **302–305**.
  sulfureopectus modestus, 303, 304.
  sulfureopectus similis, 303.
  sulfureopectus suahelicus, 303–305.
  sulfureopectus sulfureopectus, 303.
chloropterus, Lamprocolius, 334.
chocolatina, Muscicapa, 229.
chocolatinus, Dioptrornis, 14.
  Dioptrornis chocolatinus, **229**, 230.
Choriotis arabs arabs, 3.
  kori struthiunculus, 3.
Cichladusa guttata guttata, **153–155**.
  guttata mülleri, 154.
  guttata rufipennis, 154.
Cichlomyia, 220.
  caerulescens, 231.
cinerascens, Hypodes cinereus, 221.
  Sporopipes, 395.
  Sporopipes frontalis, **395**, 396.
  Turdus libonyanus, 125.
cinerea, Apalis cinerea, **173**, 174.
  Creatophora, **328**.
  Euprinodes cinerea, 174.
  Motacilla, 248.
  Motacilla cinerea, **248**.
  Muscicapa, 220.
  Tephrocorys cinerea, 39, 40.
cinereigula, Pytilia afra, 439.
cinereocapilla, Budytes flavus, **249**.
  Motacilla, 249.

cinereola, Cisticola, 208.
  Cisticola cinereola, **208**.
  Hypodes cinereus, 221.
  Muscicapa, 220.
cinereus, Euprinodes, 173.
  Hypodes cinereus, 221.
  Rallus, 328.
cinnamomea, Sylvia, 167.
cinnamomeus, Anthus, 253.
  Anthus richardi, **253**.
  Bradypterus, **167–169**
Cinnyricinclus leucogaster friedmanni, 2, **330–332**.
  leucogaster lauragrayae, **331**, 332.
  leucogaster leucogaster, 331.
  leucogaster verreauxi, 331.
Cinnyris afer, 363.
  falkensteini, 360.
  habessinicus alter, 352, 353.
  habessinicus habessinicus, **352**, 353.
  habessinicus hellmayri, 354.
  habessinicus turkanae, 352, 353.
  hunteri, 364.
  hypodila, 367.
  mariquensis hawkeri, 354, 356.
  mariquensis osiris, 354, **355**, 356.
  mariquensis suahelicus, **354**, 355.
  mediocris, 361.
  mediocris fülleborni, 361.
  mediocris garguensis, 361.
  mediocris keniensis, 361, 362.
  mediocris mediocris, **361**, 362.
  mediocris usambaricus, 361.
  nectarinoides, 350.
  reichenowi, 362, 363.
  reichenowi kikuyuensis, 362.
  reichenowi reichenowi, **362**.
  senegalensis lamperti, 363.
  stuhlmanni, 362, 363.
  suahelica, 354.
  venustus albiventris, 357, 358.
  venustus blicki, 2, 3, **356–359**.
  venustus falkensteini, 357–**360**.
  venustus fazoqlensis, 356–358, **360**.
  venustus igneiventris, 357–359.
  venustus niassae, 357.
  venustus sukensis, 358.
Cisticola, 196.
  aridula lavendulae, 3, **197**.
  aridula tanganyika, **197**.
  brachyptera katonae, **206**, 207.
  brachyptera reichenowi, 206, 207.
  brachyptera zedlitzi, 206, 207.
  brunnescens, 198.
  brunnescens brunnescens, **198**, 463.
  chiniana bodessa, 2, 199, **200**, 201.
  chiniana fischeri, 199.
  chiniana heterophrys, 199.
  chiniana humilis, **198**, 199.
  chiniana simplex, 199.
  chiniana ukamba, **199**.
  cinereola, 208.
  cinereola alleni, 208, 209.
  cinereola cinereola, **208**.
  cinereola schillingsi, 208, **209**.
  galactotes haematocephala, 203.
  galactotes lugubris, **202**, 203.
Cisticola galactotes nyansae, **203**.
  humilis, 198.
  hunteri hunteri, 202.
  hunteri kilimensis, 202.
  hunteri masaba, 202.
  hunteri prinioides, **202**.
  hunteri wambuguensis, 202.
  juncidis perennia, **196**.
  juncidis uropygialis, **196**.
  katonae, 206.
  lavendulae, 197.
  lugubris nyansae, 203.
  nana, **207**.
  natalensis argentea, 204.
  natalensis inexpectata, **204**, 205.
  natalensis kapitensis, 204, **205**.
  orientalis, 209.
  prinioides, 202.
  robusta abaya, 204.
  robusta ambigua, 204.
  robusta omo, 204.
  robusta robusta, **204**.
  robusta tana, 205.
  schillingsi, 209.
  strangei kapitensis, 205.
  subruficapilla bodessa, 200.
  subruficapilla fricki, 200.
citerior, Pytilia, 441.
citrinelloides, Serinus, 474.
  Spinus citrinelloides, **474**.
clamans, Spiloptila, 210.
Clamator jacobinus hypopinarus, 2, 3.
  jacobinus jacobinus, 99.
  serratus serratus, 2.
clara, Motacilla, **247**.
claudei, Pseudoalcippe abyssinicus, 102.
Coccopygia melanotis kilimensis, 448, 449.
  melanotis quartinia, **448**, 449.
cognitus, Phyllastrephus, 118.
Coliuspasser albonotatus abyssinica, 429.
  albonotatus albonotatus, 429.
  albonotatus eques, **429**.
  albonotatus sassii, 429.
  ardens laticauda, 428, 431.
  ardens suahelica, **430**, 431.
  ardens teitensis, 430, 431.
  concolor, 431.
collaris, Anthreptes, 367.
  Lanius collaris, 263.
  Mirafra, 8.
collybita, Phylloscopus collybita, **163**.
  Sylvia, 163.
Colonocincla, 132.
Columba olivae, 12.
Comatibis, 5.
communis, Sylvia, 160.
  Sylvia communis, **160**.
concinnatus, Prionops, 319.
concolor, Coliuspasser, 431.
confusus, Harpolestes senegalus, 293.
  Pomatorhynchus, 290, 291.
congener, Stelgidocichla latirostris, 123.
congicus, Dryoscopus gambensis, 285.
  Lanius collaris, 263, 264.

conradsi, Pytilia, 441.
Coracias abyssinicus, 6.
Coraphites melanauchen, 34.
corax, Corvus, 76.
coronatus, Lanius, 292, 293.
Corvidae, 72.
Corvultur albicollis, **78**, 79.
  albicollis crassirostris, 79.
  crassirostris, 14, **78**–80.
Corvus affinis, 81.
  albicollis, 78.
  albus, **72**–74, 80.
  capensis, 75.
  capensis capensis, **75**, 76.
  capensis kordofanensis, 75, 76.
  capensis minor, 75.
  corax, 76.
  corax edithae, 74, **76**, 77.
  corax ruficollis, 76.
  crassirostris, 78.
  edithae, 76.
  phaeocephalus, 73.
  rhipidurus, 80.
  scapulatus, 80.
Corythaixoides leucogaster, 14.
Cosmophoneus sulphureopectus suahelicus, 305.
Cosmopsaris regius, 8, 337.
  regius magnificus, **336**, 337.
Cossypha caffra, 150.
  caffra caffra, 152.
  caffra iolaema, **152**.
  caffra mawensis, 152, 153.
  caffra namaquensis, 152.
  heuglini, 149.
  heuglini euronota, 150.
  heuglini heuglini, **149**, 150.
  heuglini intermedia, 149–151.
  heuglini occidentalis, 149.
  heuglini subrufescens, 150, 151.
  semirufa donaldsoni, 12, 151.
  semirufa intercedens, 151, **152**.
  semirufa saturatior, **150**, 151.
  semirufa semirufa, 150.
costae, Turdus libonyanus, 125.
Cotyle minor, 53.
  rufigula, 54.
craspedoptera, Euplectes hordeacea, **420**–422.
craspedopterus, Ploceus, 420.
crassirostris, Corvultur, 14, 78–80.
  Corvultur albicollis, 79.
  Corvus, 78.
  Euplectes capensis, 424.
Crateropus guttatus, 153.
  hindei, 95.
  hypoleucus, 94.
  rubiginosa, 96.
  rubiginosus rubiginosus, 97.
  smithi omoensis, 94.
  smithii, 91.
  smithii lacuum, 93.
crawfurdi, Eremomela griseoflava, 187, 188.
Creatophora cinerea, **328**.
Criniger strepitans, 115.
cristata, Prionops cristata, **317**, 318.
cristatus, Prionops, 317.
Crithagra flavivertex, 467.
crocatus, Ploceus ocularius, 408, 409.
croceus, Macronyx croceus, **259**.
cruentata, Chalcomitra, 3, 363–**365**.
  Nectarinia, 365.
cruentus, Lanius, 210.
  Rhodophoneus cruentus, 8, **310**, 312.
cryptoleuca, Platysteira, 243.
Cryptolopha mackenziana, 165.
  umbrovirens omoensis, 163.
cucullata, Hirundo, 45.
cucullatus, Lanius, 293.
  Spermestes cucullatus, 432, 433.
curruca, Motacilla, 159.
  Sylvia curruca, **159**.
Cursorius cursor littoralis, 8.
  cursor somaliensis, 7.
curtus, Parus albiventris, 87.
Cyanochen cyanopterus, 14.
Cyanomitra olivacea neglecta, 366.
  olivacea ragazzii, **366**.
cyanopterus, Cyanochen, 14.
cypriaca, Oenanthe leucomela, 135.
Cypsiurus parvus myochrous, 2.
damarensis, Pomatorhynchus australis, 288.
  Pytilia, 441.
danakilensis, Spiloptila, 210.
daurica, Hirundo, 45.
deckeni, Eurocephalus rüppelli, 8, 322, **323**.
degener, Laniarius funebris, 277, **279**.
degeni, Mirafra fischeri, 22, **23**.
Dendropicos abyssinicus, 14.
desertorum, Alaemon alaudipes, **28**.
  Alauda, 28.
Dicruridae, 61.
Dicrurus adsimilis adsimilis, 62.
  adsimilis atactus, 62.
  adsimilis divaricatus, 61–63.
  adsimilis fugax, 62, 63.
  adsimilis jubaensis, 62.
dinemelli, Dinemellia dinemelli, **377**.
  Textor, 377, 378.
Dinemellia dinemelli boehmi, 378.
  dinemelli dinemelli, **377**.
  ruspolii, 377.
Dioptrornis chocolatinus, 14.
  chocolatinus chocolatinus, **229**, 230.
  fischeri, 229.
  fischeri fischeri, **229**.
Dioptrornis reichenowi, 230.
distinguenda, Sylviella, 181.
divaricata, Muscicapa, 61.
divaricatus, Dicrurus adsimilis, **61–63**.
djamdjamensis, Alseonax minimus, 217–219.
  Alseonax murinus, 217, 218.
  Pinarochroa sordida, 140, 141.
dodsoni, Pycnonotus, 105.
  Pycnonotus dodsoni, **105**–109.
dohertyi, Laniarius, 306.
  Pomatorhynchus australis, 287–289.
  Telophorus, 306.
domesticus, Passer, 390.
domicella, Hirundo, 46.

donaldsoni, Cossypha semirufa, **12, 151.**
    Ploceipasser, 381.
    Plocepasser, **381**, 382.
    Turacus leucotis, 14.
dorcadichroa, Seicercus umbrovirens, 164.
dorsalis, Lanius, 8, 267, **268**, 269.
    Pseudonigrita arnaudi, 383–385.
dowashanus, Phyllastrephus, 118.
Drepanoplectes jacksoni, **432.**
Drepanorhynchus, 352.
    reichenowi, 351.
Drymoica robusta, 204.
    uropygialis, 196.
Drymophila abyssinica, 101.
Dryodromas smithii, 211.
Dryoscopus affinis, 284.
    cubla hamatus, **283.**
    erwini, **275.**
    funebris, 275.
    gambensis, 284.
    gambensis congicus, 285.
    gambensis erwini, 285.
    gambensis erytheae, **285**, 286.
    gambensis gambensis, 285, 286.
    gambensis malzacii, 286.
    gambensis nyanzae, 286.
    gambensis sextus, 285.
    hamatus, 283.
    malzacii erythreae, 285.
    occidentalis, 284.
    pringlii, 3, **287.**
    suahelicus, 284.
dubia, Cercomela, 2, 12, **140.**
    Myrmecocichla, 140.
ducis, Riparia paludicola, 53.
dukhuensis, Motacilla alba, 246.
dumonti, Mino, 329.
edithae, Corvus, 76.
    Corvus corax, 74, **76**, 77.
edmundi, Ploceus, 399.
edolioides, Melaenornis, 231.
    Melaenornis edolioides, 232.
    Melasoma, 231.
Edolius lugubris, 62.
elachior, Anthreptes collaris, 367.
elaeica, Hippolais pallida, **161.**
    Salicaria, 161.
elegans, Lanius excubitor, 262.
    Streptopelia decipiens, 8.
Eleocerthia ragazzii, 366.
elgonensis, Bradypterus, 168.
    Linurgus, 473.
    Linurgus elgonensis, 473.
    Merula, 126.
    Onychognathus walleri, 338, 339.
    Pogonocichla, 158.
    Turdus olivaceus, **126**, 127.
    Zosterops, 373.
ellioti, Galerida theklae, 31, 32.
Emberiza hortulana, **477.**
    paradisaea, 464.
    poliopleura, **475.**
    schoeniclus, 389.
    tahapisi, **477.**
emini, Argya rubiginosa, 97.
    Hirundo, 47.
    Hirundo rufula, **45–47.**
    Ploceus, 398.
    Ploceus emini, **400**, 401.
    Pomatorhynchus australis, 288.
    Pseudonigrita arnaudi, 383, 384.
    Sporopipes frontalis, 395, **396.**
    Sycobrotus, 400.
eminibey, Sorella, 3, **392.**
emmae, Saxicola torquata, **146.**
enchora, Pseudonigrita cabanisi, 386.
enchorus, Pseudonigrita, 385.
enigma, Cercomela scotocerca, 12, 140.
Enneoctonus niloticus, 273.
eques, Coliuspasser albonotatus, **429.**
    Vidua, 429.
Eremialector lichtensteinii abessinicus, 8.
    lichtensteinii hyperythrus, 3, 8.
eremita, Geronticus, 11.
eremobius, Ploceus baglafecht, 399.
Eremomela flavicrissalis, 189.
    flaviventris abdominalis, 190.
    flaviventris karamojensis, 188.
    griseoflava, **186.**
    griseoflava abdominalis, 3, 187, 188, **190, 191.**
    griseoflava alexanderi, 186–188.
    griseoflava archeri, 8, 186–188.
    griseoflava crawfurdi, 187, 188.
    griseoflava erlangeri, 187, 189–191.
    griseoflava flavicrissalis, 8, 187–**189**, 190, 191.
    griseoflava griseoflava, **186**–189.
    griseoflava karamojensis, 187, **188**, 189.
    griseoflava tardinata, 188.
Eremopteryx albifrons albifrons, 34, 35.
    albifrons melanauchen, 35.
    albifrons sincipitalis, 34, 35.
    leucotis leucotis, **32**–34.
    leucotis madaraszi, 33, 34.
    leucotis melanocephala, 33, 34.
    leucotis smithi, 34.
    nigriceps, 34, 35.
    nigriceps melanauchen, **34.**
    signata, **35**, 37, 38.
    signata harrisoni, 37.
    verticalis, 38.
Eressornis, 321, 322.
Erithacus rubecula rubecula, **159.**
eritreae, Galerida, 29.
    Passer griseus, 389, 390.
erlangeri, Batis minor, **237**–239.
    Bradornis griseus, 226.
    Bradornis microrhynchus, **223, 225, 226–228.**
    Calamonastes simplex, 172.
    Camaroptera brevicaudata, 192–194.
    Cercomela melanura, 138.
    Eremomela griseoflava, 187, 189–191.
    Eurocephalus anguitimens, 325.
    Eurocephalus rüppelli, 8, 322–**325**, 326.

erlangeri, Indicator minor, 2, 3.
Nectarinia melanogastra, 351.
Nilaus brubru, 326, 327.
Pinarochroa sordida, 12, 141.
Plocepasser mahali, 380, 381.
Pomatorhynchus senegalus, **291**, 292, 295–297, 302.
Prinia somalica, 8, **216**.
Sylvietta, 185.
Telophonus senegalus, 291, 293.
Tephrocorys cinerea, **38**, 40.
Zosterops, 374, 375.
ernesti, Pinarochroa sordida, 141, 142.
erwini, Dryoscopus, 284.
Dryoscopus gambensis, 285.
erythreae, Dryoscopus gambensis, **285**, 286.
Dryoscopus malzacii, 285.
Lagonosticta, 445.
Seicercus umbrovirens, 14, 164.
erythrogaster, Laniarius, 277.
erythronotos, Estrilda, 454.
erythropterus, Lanius, 289, 292.
Pomatorhynchus senegalus, **289**–291, 294, 295.
Erythropygia hamertoni, 8.
leucoptera brunneiceps, 155.
leucoptera leucoptera, **155**.
leucoptera sclateri, 156.
leucoptera vulpina, 155, 156.
erythroryncha, Tanagra, 345.
erythrorynchus, Buphagus erythrorynchus, **345**, 346.
Estrelda quartinia, 448.
Estrilda astrild macmillani, 449, 450.
astrild massaica, 449, 450.
astrild minor, **449**, 450.
astrild nyanzae, 449, 450.
astrild peasei, 449–**451**.
charmosyna charmosyna, **453**.
charmosyna kiwanukae, 454.
charmosyna nigrimentum, 454.
charmosyna pallidior, 454.
erythronotos, 454.
ochrogaster, 452.
paludicola ochrogaster, 3, **452**.
peasei, 451.
rhodopyga centralis, 451, **452**.
rhodopyga hypochra, 451.
rhodopyga polia, 451, 452.
rhodopyga rhodopyga, **451**.
eugenia, Stelgidocichla latirostris, **122**, 123.
eugenius, Andropadus, 122.
Eulabes, 329.
Euodice cantans inornata, 435, 436.
cantans meridionalis, 2, **434**, 435.
cantans orientalis, 435.
cantans tavetensis, 434.
Euplectes capensis angolensis, 423.
capensis approximans, 425.
capensis crassirostris, 424.
capensis kilimensis, 3, 423-**427**.
capensis knysnae, 424.
capensis litoris, 423, 425.
Euplectes capensis macrorhynchus, 424.
capensis xanthomelas, **423-426**, 428.
capensis zambesiensis, 424, 425.
franciscana franciscana, 422, 423.
franciscana pusilla, **422**.
hordeacea changamwensis, 420.
hordeacea craspedoptera, **420-422**.
hordeacea sylvatica, 421, 422.
nigroventris, 423.
rufigula, 423.
taha stricta, 428.
xanthomelas, 423.
Eupodotis canicollis somaliensis, 8.
Euprinodes cinerea cinerea, 174.
cinerea sclateri, 175.
cinereus, 173.
flavocinctus, 175.
Eurillas, 12.
Eurocephalus anguitimens, 322.
anguitimens erlangeri, 325.
rüppelli, 322.
rüppelli böhmi, 323.
rüppelli deckeni, 8, 322, 323.
rüppelli erlangeri, 8, **322-325**, 326.
rüppelli fischeri, 322, 323.
rüppelli rüppelli, **322**, 324, 325.
euronota, Cossypha heuglini, 150.
eurycricotus, Zosterops virens, 372.
Eurystomus afer aethiopicus, 14.
eversmanni, Phylloscopus trochilus, 162.
excubitor, Lanius, 262.
excubitorius, Lanius, 270, 271.
Lanius excubitorius, 271-273.
explorator, Monticola, 132.
falkensteini, Cinnyris, 360.
Cinnyris venustus, 357-**360**.
familiaris, Prinia, 216.
fayi, Pycnonotus layardi, 111.
Pycnonotus tricolor, **111**.
fazoqlensis, Cinnyris venustus, 356–358, **360**.
Nectarinia, 360.
feldegg, Budytes feldegg, **250**.
Motacilla, 250.
feminina, Ploceus, cucullatus, 406.
ferreti, Tchitrea, 243.
Terpsiphone viridis, **243-245**.
ferrugineus, Laniarius, 284.
Laniarius ferrugineus, 280.
filifera, Hirundo smithii, 44.
filiola, Nectarinia kilimensis, 347, 348.
fischeri, Bradyornis, 229.
Cisticola chiniana, 199.
Dioptrornis, 229.
dioptrornis fischeri, **229**.
Eurocephalus rüppelli, 322, 323.
Linura, 464.
Mirafra, 16, 17, 24, 27.
Mirafra fischeri, **22**, 23.
Phyllastrephus fischeri, 118.
Spreo, 333.
Sylvietta whytii, 181, 183.
fischeri, Vidua, 463, **464**.
Fiscus, 268.

flava, Campephaga, 57.
  Campephaga, flava, **57**, 58.
  Motacilla, 249.
flavicollis, Macronyx, 14, 259, **260**, 261.
flavicrissalis, Eremomela, 189.
  Eremomela, griseoflava, 8, 187, 188, **189–191**.
flavifrons, Poicephalus, 14.
flavigularis, Apalis, 177.
flavilateralis, Zosterops senegalensis, 369, 370.
flavivertex, Crithagra, 467.
  Serinus flavivertex, **467**.
flavocincta, Apalis flavida, **175**–177.
flavocinctus, Euprinodes, 175.
flavus, Budytes flavus, **249**.
franciscana, Euplectes franciscana, 422, 423.
Francolinus africanus, 6, 14.
  africanus friedmanni, 2.
  castaneicollis, 14.
  castaneicollis bottegi, 12.
  castaneicollis ogoensis, 12.
  sephaena, 6.
  sephaena jubaensis, 8.
fraseri, Tympanistria tympanistria, 3.
frater, Pomatorhynchus australis, 289.
fraterculus, Bradypterus alfredi, 2, 3, 166, **170**, 171.
  Bradypterus babaeculus, 170.
frenata, Oenanthe bottae, **136**, 137.
  Saxicola, 136.
fricki, Andropadus, 121.
  Andropadus insularis, 2, 3, **121**, 122.
  Chlorophoneus sulfureopectus, 2, **302**–305.
  Cisticola subruficapilla, 200.
  Lagonosticta, 443, 444.
  Melaniparus afer, 82.
  Othyphantes, 397, 398.
  Parus afer, 2, **82**, 83.
  Phyllastrephus strepitans, 115, 116.
  Ploceus, 2, **397**, 398.
  Zosterops senegalensis, 2, 3, **369**, 370.
friedmanni, Cinnyricinclus leucogaster, 2, **330**–332.
  Francolinus africanus, 2.
Fringilla afra, 439.
  angolensis, 471.
  luteola, 401.
  macroura, 460.
Fringillaria poliopleura, 475.
  saturatior, 478.
  striolata jebelmarrae, 479.
  striolata saturatior, 3, **478**.
  tahapisi septemstriata, 477, 478.
  tahapisi tahapisi, 477.
Fringillidae, 465.
frobenii, Ploceus cucullatus, 406.
frontalis, Spinus citrinelloides, 474.
  Sporopipes frontalis, 395, 396.
fuertesi, Tephrocorys cinerea, 38, 40.
fugax, Dicrurus adsimilis, 62, 63.
fulgens, Passer castanopterus, 2, 3, **387**, 388.
fülleborni, Alseonax adusta, 218.
  Cinnyris mediocris, 361.
  Macronyx, 259.
funebris, Dryoscopus, 275.
  Laniarius funebris, **275**, 276, 278.
fuscocollaris, Riparia riparia, 52.
gadowi, Nectarinia killimensis, 347.
gaikwari, Sylvietta, 185.
galactotes, Agrobates, 7.
galbula, Ploceus, **411**.
Galeopsar salvadorii, 8, **14**, **342**, 343.
Galerida, 7.
  altirostris, 29.
  arenicola, 31.
  cristata somaliensis, **29**, 30.
  eritreae, 29.
  isabellina, 29.
  theklae ellioti, 31, 32.
  theklae praetermissa, **30**–32.
galinieri, Lioptilornis, **103**, 104.
  Parisoma, 103.
gallarum, Mirafra hypermetra, **19**–21.
  Trachyphonus erythrocephalus, 14.
galtoni, Pomatorhynchus, 293.
gambensis, Dryoscopus, 284.
  Dryoscopus gambensis, 285, 286.
garguensis, Anthreptes collaris, 367.
  Cinnyris mediocris, 361.
  Zosterops virens, 371–373.
Geokichla litsipsirupa litsipsirupa, 130.
  litsipsirupa simensis, 14, **130**, 131.
  litsipsirupa stierlingi, 130.
Geronticus, 5.
  eremita, 11.
glaucovirens, Lamprocolius, 14.
Glottis nebularia, 3.
golzi, Apalis flavida, 176, 177.
gongonensis, Passer, 389, **390**, 391.
  Pseudostruthus, 390.
gracilirostris, Calamoherpe, 166.
  Calamornis, 166.
graculinus, Prionops, 320.
  Sigmodus retzii, **320**, 321.
Granatina ianthinogaster hawkeri, 459.
  ianthinogaster ianthinogaster, **457**, 458.
  ianthinogaster montana, 457, 458.
  ianthinogaster roosevelti, 457, 458.
  ianthinogaster rothschildi, 457, 458.
  ianthinogaster ugandae, 458.
  ianthogaster ugandae, 458.
granti, Bradornis pallidus, 223–225.
granviki, Apalis cinerea, 173, 174.
Graucalus caesia caesia, 60, 61.
  caesia preussi, 61.
  caesia pura, **60**.
  purus, 60.
graueri, Poliospiza striolata, 472.
  Prinia mistacea, 212–214.
grisea, Bradornis, 224.
griseigula, Camaroptera, 195.
  Camaroptera brevicaudata, 191–**195**.
griseigularis, Muscicapa, 222,
  Pytilia afra, 439,

griseiventris, Camaroptera, 191.
    Streptopelia decipiens, 8.
griseoflava, Eremomela, 186.
    Eremomela griseoflava, **186**–189.
griseus, Bradornis, 225.
grotei, Alseonax minimus, 218.
    Phyllastrephus, 118.
    Pytilia, 441.
guasso, Anthoscopus musculus, 90.
    Sorella eminibey, 392.
gularis, Nicator, 314.
    Nicator chloris, **314**.
guttata, Cichladusa guttata, **153**–155.
guttatus, Crateropus, 153.
    Laniarius ferrugineus, 280.
guttifer, Pogonocichla, 156–158.
gutturalis Chalcomitra, 363.
Gymnocephalus, 329.
Gymnoderas, 329.
Gymnoris pyrgita kakamariae, 393.
    pyrgita massaica, 2, 393, **394**.
    pyrgita pallida, 393.
    pyrgita pyrgita, **393**, 394.
    pyrgita reichenowi, 393.
Gymnoschizorhis personata, 3, 14.
Gypaetus barbatus meridionalis, 14.
Gyps, 5.
habessinicus, Cinnyris habessinicus, **352**, 353.
    Lanius senegalus, 292.
    Nectarinia, 352.
Habropyga charmosyna, 453.
    minor, 449.
habyssinicus, Pomatorhynchus senegalus, 292, 294–296.
haematocephala, Cisticola galactotes, 203.
Halcyon leucocephala hyacinthina, 3.
    pallidiventris, 3.
hamatus, Dryoscopus, 283.
    Dryoscopus cubla, **283**.
hamertoni, Erythropygia, 8.
hararensis, Anthus nicholsoni, **251**, 252.
Harpolestes australis littoralis, 287.
    longirostris, 290.
    senegalus, 290.
    senegalus confusus, 293.
    senegalus mozambicus, 293.
harrisoni, Eremopteryx signata, 37.
harterti, Mirafra, 21, 22, 24.
    Serinus, 466.
    Terpsiphone viridis, 245.
hartlaubii, Campephaga, 57.
    Lanicterus, 57.
    Turdoides, 93.
haussarum, Anthreptes longuemarei, 368.
hawkeri, Cinnyris mariquensis, 354, 356.
    Granatina ianthinogaster, 459.
Helionympha raineyi, 354.
helleri, Planesticus, 126.
    Pogonocichla, 156, 157.
    Turdus olivaceus, 126.
hellmayri, Cinnyris habessinicus, 354.
hemprichii, Saxicola torquata, 148.
Herpystera, 216.
Heteromirafra, 5, 17.
heterophrys, Cisticola chiniana, 199.
Heterotetrax, 5.
    humilis, 7.
Heterotrogon, 12.
heuglini, Argya rubiginosa, 97.
    Cossypha, 149.
    Cossypha heuglini, **149**, 150.
    Neotis, 7.
    Oenanthe bottae, 137.
hildebrandti, Lagonosticta rubricata, 444.
    Spreo, 343.
hildegardae, Phyllolais, 178.
hilgerti, Calamonastes simplex, 172.
    Pelicinius cruentus, 312.
    Poliospiza atrogularis, 470.
    Rhodophoneus cruentus, 8, 310–**312**, 313.
    Streptopelia capicola, 8.
    Sylvietta brachyura, **179**.
hindei, Crateropus, 95.
    Turdoides, **95**, 96.
Hippolais pallida elaeica, **161**.
    pallida pallida, 161.
Hirundinidae, 40.
Hirundo abyssinica, 50.
    abyssinica abyssinica, **50**, 51.
    abyssinica maxima, 50.
    abyssinica puella, 50, 51.
    abyssinica unitatis, 50, 51.
    aethiopica, **43**.
    angolensis, 42.
    cucullata, 45.
    daurica, 45.
    domicella, 46.
    emini, 47.
    lucida, 42.
    lucida lucida, 42.
    lucida rothschildi, **42**.
    lucida subalaris, 42.
    riparia, 52.
    rothschildi, 42.
    rufula emini, 45–47.
    rufula melanocrissa, 3, **45**–48.
    rufula rufula, 46.
    rustica, 40, 41, 47.
    rustica rustica, **40**.
    senegalensis hybrida, 49.
    senegalensis monteiri, 48, 49.
    senegalensis saturatior, 48.
    senegalensis senegalensis, 45, 46, **48**, 49.
    smithii, 44.
    smithii filifera, 44.
    smithii smithii, **44**.
    transitiva, 41.
holomelaena, Psalidoprocne holomelaena, 55.
holospodium, Parisoma, 222.
hortulana, Emberiza, 477.
huillensis, Serinus flavivertex, 467.
humeralis, Lanius, 263.
    Lanius collaris, **263**, 265.
humilis, Cisticola, 198.
    Cisticola chiniana, **198**, 199.
    Heterotetrax, 7.

hunteri, Chalcomitra, 363, **364**, 366.
  Cinnyris, 364.
  Cisticola hunteri, 202.
hyacinthina, Halcyon leucocephala, 3.
hybrida, Hirundo senegalensis, 49.
Hypargos macrospilotus, 438.
  niveoguttatus, **438**.
hypermetra, Mirafra, 21.
  Mirafra hypermetra, 20.
hyperythrus, Eremialector lichtensteinii, 3, 8.
Hyphantornis bojeri, 410.
  lineolatus, 404.
  ocularius, 409.
  vitellinus uluensis, 403.
Hyphantospiza kilimensis, 473.
Hyphanturgus melanoxanthus, 409.
Hypochera, 463.
hypocherina, Vidua, 462, **463**, 464.
hypochra, Estrilda rhodopyga, 451.
Hypodes, 220.
  cinereus caerulescens, 221.
  cinereus cinerascens, 221.
  cinereus cinereola, 221.
  cinereus cinereus, 221.
  cinereus kikuyuensis, 3, **220**, 221.
  cinereus pondoensis, 220, 221.
hypodila, Cinnyris, 367.
hypoleuca, Turdoides, **94–96**.
hypoleucus, Crateropus, 94.
hypophyrrhus, Malaconotus poliocephalus, 309.
hypopinarus, Clamator jacobinus, 2, 3.
hypospodia, Pinarochroa sordida, 141.
hypostictus, Spinus citrinelloides, 474.
ianthinogaster, Granatina ianthinogaster, **457**, 458.
  Uraeginthus, 457.
icterops, Sylvia communis, **160**.
igneiventris, Cinnyris venustus, 357–359.
Illadopsis, **12**.
immutabilis, Prinia mistacea, **212–215**.
inaestimata, Chalcomitra senegalensis, 363.
incerta, Lagonosticta, 445.
indica, Saxicola torquata, 146.
Indicator minor erlangeri, 2, 3.
  variegatus jubaensis, 3.
inexpectata, Cisticola natalensis, **204**, 205.
inornata, Euodice cantans, 435, 436.
insignis, Parus niger, 85, 86.
intercedens, Bessornis, 152.
  Cossypha semirufa, 151, **152**.
  Lanius excubitorius, **270–273**.
  Mirafra, 24.
  Mirafra africanoides, **24**, 25.
intermedia, Cossypha heuglini, **149–151**.
  Quelea quelea, 416.
ntermedius, Bubalornis albirostris, **376**.
  Ploceus intermedius, **402**, 403.
  Prionops cristata, 318.
  Sigmodus retzii, 320, 321.
  Textor, 376.
interpositus, Alseonax minimus, 220.
  Malaconotus poliocephalus, 307, 308.
involucratus, Tangavius aenius, 311.
iolaema, Cossypha caffra, **152**.
isabellina, Galerida, 29.
  Oenanthe, **136**.
  Saxicola, 136.
  Sylviella, 185.
  Sylvietta, **185**.
isabellinus, Lanius cristatus, 275.
jacksoni, Drepanoplectes, **432**.
  Nectarinia, 346, 347.
  Platysteira, 242.
  Platysteira peltata, **242**.
  Sylviella, 180.
  Sylvietta whytii, **180–183**.
  Trachyphonus erythrocephalus, 2.
  Zosterops virens, 371–373.
jacobinus, Clamator jacobinus, 99.
jamesi, Pomatorhynchus, 8.
  Pomatorhynchus jamesi, **299–301**.
  Telephonus, 299.
jebelmarrae, Fringillaria striolata, 479.
jessi, Pytilia, 441.
johnstoni, Sylvietta, 181.
jubaensis, Anthreptes collaris, 367.
  Dicrurus adsimilis, 62.
  Francolinus sephaena, 8.
  Indicator variegatus, 3.
  Pytilia melba, 443.
  Zosterops, 370.
  Zosterops senegalensis, 369, **370**, 371.
kaffensis, Zosterops virens, 371–373.
kakamariae, Gymnoris pyrgita, 393.
kaleniczenskii, Budytes, 250.
kapitensis, Cisticola natalensis, 204, **205**.
  Cisticola strangei, 205.
  Pseudonigrita arnaudi, **383–385**.
karamojensis, Eremomela flaviventris, 188.
  Eremomela griseoflava, 187, **188**, 189.
katonae, Cisticola, 206.
  Cisticola brachyptera, **206**, 207.
kavirondensis, Mirafra fischeri, 23.
  Ploceus luteolus, 401.
keniana, Argya, 100, 101.
keniensis, Cinnyris mediocris, 361, 362.
  Linurgus elgonensis, 474.
  Onychognathus walleri, 339.
  Phyllastrephus, 117, 118.
  Pogonocichla cucullata, 156.
  Pogonocichla margaritata, 3, **156**, 157.
  Sylvietta leucophrys, 185, 186.
kenya, Chloropeta, 234, 235.
kikuyuensis, Alseonax caerulescens, 220.
  Arizelocichla tephrolaema, **119**.
  Cinnyris reichenowi, 362.
  Hypodes cinereus, 3, **220**, 221.
  Lagonosticta senegala, **445–447**, 448.
  Oriolus larvatus, 72.

kikuyuensis, Oriolus monacha, 67, 71, **72**.
    Spinus citrinelloides, 474.
    Xenocichla, 119.
    Zosterops, 371.
    Zosterops virens, **371–373**.
kilimandjaricus, Andropadus insularis, **121**.
kilimensis, Cisticola hunteri, 202.
    Coccopygia melanotis, 448, 449.
    Euplectes capensis, 3, **423–427**.
    Hyphantospiza, 473.
    Linurgus kilimensis, 3, **473**, 474.
    Nectarinia, 347.
    Nectarinia kilimensis, **347**, 348.
    Pseudoalcippe abyssinicus, 102.
kirki, Pytilia, 441, 443.
    Pytilia melba, 440, 441.
kismayensis, Pomatorhynchus jamesi, 299–301.
kisumui, Ploceus, 402, 403.
kitungensis, Andropadus fricki, **122**.
    Andropadus insularis, 121, **122**.
kivuensis, Pomatorhynchus australis, 289.
kiwanukae, Estrilda charmosyna, 454.
klaasi, Lampromorpha, 247.
Knestrometopon, 342.
knysnae, Euplectes capensis, 424.
kordofanensis, Corvus capensis, 75, 76.
kordofanicus, Rhodophoneus cruentus, 310, 312.
krameri, Psittacula, 6.
kumboensis, Alseonax minimus, 218.
lacuum, Anthus richardi, 253, 254.
    Crateropus smithii, 93.
    Parus niger, 3, **84–87**.
    Turdoides leucopygia, **91–93**, 94.
ladoensis, Pytilia, 441.
laeta, Seicercus, 164.
Lagonosticta brunneiceps, 445.
    carlo, 445.
    erythreae, 445.
    fricki, 443, 444.
    incerta, 445.
    rhodopareia, 443, 444.
    rubricata hildebrandti, 444.
    rubricata rhodopareia, **443**, 444.
    rubricata umbriventer, 444.
    rufopicta, 445.
    rufopicta lateritia, 445.
    senegala abayensis, **445–447**.
    senegala brunneiceps, **445–447**.
    senegala kikuyuensis, **445–447**, 448.
    senegala ruberrima, 445, 446.
    senegala somaliensis, 445, 446, 448.
lamperti, Chalcomitra senegalensis, **363**.
    Cinnyris senegalensis, 363.
Lamprocolius chalybeus chalybeus, **333**, 334.
    chalybeus sycobius, 333.
    chloropterus, 334.
    glaucovirens, 14.
Lamprocolius splendidus splendidus, 334.
    superbus, 344.
Lampromorpha klaasi, 247.
Lamprotornis chalybeus, 333.
    purpuropterus, 334.
    purpuropterus aeneocephalus, 335.
    purpuropterus brevicaudus, 335, 336.
    purpuropterus purpuropterus, **334**, 335.
    tenuirostris, 340.
Laniarius aethiopicus, 280, 282.
    bergeri, 276.
    blanfordi, 293.
    dohertyi, 306.
    erythrogaster, 277.
    ferrugineus, 284.
    ferrugineus aethiopicus, **280**, 281, 283.
    ferrugineus ambiguus, 281, 282.
    ferrugineus bicolor, 281.
    ferrugineus ferrugineus, 280.
    ferrugineus guttatus, 280.
    ferrugineus limpopoensis, 280.
    ferrugineus major, 281, 282.
    ferrugineus mossambicus, 280.
    ferrugineus natalensis, 280.
    ferrugineus pondoensis, 280.
    ferrugineus somaliensis, 281, 282.
    ferrugineus sublacteus, 281, 282.
    ferrugineus transvaalensis, 280.
    ferrugineus turatii, 281.
    funebris atrocoeruleus, 277.
    funebris degener, 277, **279**.
    funebris funebris, **275**, 276, 278.
    funebris lugubris, 277.
    funebris rothschildi, 276, 277.
    ruficeps, 8.
Lanicterus hartlaubii, 57.
Laniidae, 261.
Lanius antinorii, 265, 267, 268.
    cabanisi, **270**.
    collaris cameroonensis, 263.
    collaris collaris, 263.
    collaris congicus, 263, 264.
    collaris humeralis, **263**, 265.
    collaris marwitzi, 263.
    collaris pyrrhostictus, 263.
    collaris smithi, 263.
    collaris subcoronotus, 263.
    collaris uropygialis, 263, 264.
    coronatus, 292, 293.
    cristatus isabellinus, 275.
    cristatus phoenicuroides, 275.
    cruentus, 310.
    cucullatus, 293.
    dorsalis, 8, 267, **268**, 269.
    erythropterus, 289, 292.
    excubitor, 262.
    excubitor aucheri, 262.
    excubitor elegans, 262.
    excubitor leucopygos, 262.
    excubitor pallidirostris, **261**, 262.
    excubitorius, 270, 271.
    excubitorius bohmi, 272.
    excubitorius excubitorius, 271–273.
    excubitorius intercedens, **270–273**.
    excubitorius princeps, 271.
    excubitorius tschadensis, 272.

Lanius humeralis, 263.
  pallidirostris, 261.
  phoenicuroides, 275.
  poliocephalus, 315.
  senator badius, 274.
  senator niloticus, 273, 274.
  senator senator, 273.
  senegalus, 292.
  senegalus habessinicus, 292.
  somalicus, 265, 268.
  somalicus mauritii, 8, 266, 267.
  somalicus somalicus, 8, **265**–267.
lateritia, Lagonosticta rufopicta, 445.
lathamii, Quelea quelea, 417.
laticauda, Coliuspasser ardens, 428, 431.
latirostris, Stelgidocichla latirostris, 123.
latistriatus, Anthus, 252, 253.
lauragrayae, Cinnyricinclus leucogaster, **331**, 332.
lavendulae, Cisticola, 197.
  Cisticola aridula, 3, **197**.
Leioptila, 104.
lepida, Prinia, 216.
Leptoptilus, 5.
leucogaster, Cinnyricinclus leucogaster, 331.
  Corythaixoides, **14**.
leucomela, Motacilla, 134.
  Oenanthe leucomela, **134**, 135.
leucomelas, Parus niger, 85, 86.
leuconotus, Parus, **88**.
leucophrys, Sylviella, 185.
  Sylvietta leucophrys, **185**, 186.
leucopsis, Sylviella, 180, 181.
  Sylvietta brachyura, 179, **180**, 184.
leucoptera, Erythropygia leucoptera, **155**.
  Salicaria, 155.
leucopygia, Turdoides leucopygia, 91, 92.
leucopygos, Lanius excubitor, 262.
leucotis, Eremopteryx leucotis, **32–34**.
leucotis, Loxia, 32.
limbata, Turdoides leucopygia, 91, 92.
limpopoensis, Laniarius ferrugineus, 280.
Linaria atrogularis, **471**.
lineolatus, Hyphantornis, 404.
Linura fischeri, 464.
Linurgus, 12.
  elgonensis, 473.
  elgonensis elgonensis, 473.
  elgonensis keniensis, 474.
  kilimensis kilimensis, 3, **473**, 474.
  kilimensis rungwensis, 473, 474.
Lioptilornis, 103. 104.
  galinieri, **103**, 104.
  rufocinctus, 104.
Lioptilus, 104.
  nigricapillus, 103.
litoris, Euplectes capensis, 423, 425.
litsipsirupa, Geokichla litsipsirupa, 130.
littoralis, Batis molitor, 236.
  Cursorius cursor, 8.
littoralis, Harpolestes australis, 287.
  Ploceus, 402, 403.
  Pomatorhynchus australis, 3, **287**, 288.
  Pycnonotus dodsoni, 105, 106.
longicauda, Motacilla, 247.
longirostris, Anthus nicholsoni, 252.
  Harpolestes, 290.
lönnbergi, Phyllastrephus cerviniventris, 2, 3, **118**, 119.
Lophoceros melanoleucos, 6.
loringi, Sylvietta whytii, 181–184.
lovati, Ploceus, 399.
loveridgei, Argya, 100, 101.
Loxia abyssinica, 406.
  baglafecht, 399.
  leucotis, 32.
  nubilosa, 464.
lucida, Hirundo, 42.
  Hirundo lucida, 42.
lucidipectus, Nectarinia pulchella, **348**, 349.
ludoviciae, Turdus, 12.
lugubris, Cisticola galactotes, **202**, 203.
  Edolius, 62.
  Laniarius funebris, 277.
  Melaenornis edolioides, **231**, 232.
  Muscicapa, 231.
  Oenanthe, 14, **135**.
  Rhynchastatus, 277.
  Saxicola, 135.
  Stephanibyx, 3.
  Sylvia, 202.
Luscinia megarhyncha africana, 2, **159**.
  megarhyncha megarhyncha, 159.
Lusciniola abyssinica, 166.
Lusciola africana, 159.
luteola, Fringilla, 401.
luteolus, Ploceus leuteolus, **401**, 402.
Lybius tsanae, 11, 14.
  undatus, 14.
lypura, Cercomela melanura, 8, **137**, 138, 140.
  Sylvia, 137.
Machetes pugnax, 329.
mackenziana, Cryptolopha, 165.
  Seicercus umbrovirens, 164, **165**.
macmillani, Estrilda astrild, 449, 450.
Macronix tenellus, 256.
Macronyx ascensi, 259.
  aurantiigula, 3, **259**, 260.
  aurantiigula subocularis, 260.
  croceus croceus, **259**.
  croceus vulturnus, 259.
  flavicollis, 14, 259, **260**, 261.
  fülleborni, 259.
macrorhyncha, Sylvietta, 185.
macrorhynchus, Euplectes capensis, 424.
macrospilotus, Hypargos, 438.
macroura, Fringilla, 460.
  Vidua, **460–463**.
maculicollis, Serinus, 465.
  Serinus dorsostriatus, **465**, 466.
madaraszi, Eremopteryx leucotis, 33, 34.
magnificus, Cosmopsaris regius, **336**, 337.

- major, Laniarius ferrugineus, 281, 282.
  - Parus, 88.
  - Sylviella, 181, 182.
- Malaconotus poliocephalus approximans, **307**–309.
  - poliocephalus blanchoti, 308, 309.
  - poliocephalus catharoxanthus, 307–309.
  - poliocephalus hypophyrrhus, 309.
  - poliocephalus interpositus, 307, 308.
  - poliocephalus monteiri, 308.
  - poliocephalus poliocephalus, 307-309.
  - poliocephalus schoanus, 308, **309**, 310.
- malensis, Apalis, 177.
  - Apalis flavida, 8, 176, **177**.
  - Ploceus melanoxanthus, 409.
- Malurus pulchellus, 178.
- malzacii, Dryoscopus gambensis, 286.
- mandanus. Pomatorhynchus jamesi, 299-301.
- margaritae, Sporaeginthus, 453.
- marginalis, Amadina, 437.
- marginata, Mirafra, 15.
  - Mirafra cantillans, **15**-17, 19, 24.
- marsabit, Alseonax minimus, 220.
  - Phyllastrephus fischeri, 118.
- martensi, Prionops poliocephalus, 316.
- marwitzi, Lanius collaris, 263.
  - Phoeniculus purpureus, 3.
- masaba, Cisticola hunteri, 202.
- massaica, Estrilda astrild, 449, 450.
  - Gymnoris pyrgita, 2, 393, **394**.
  - Mirafra poecilosterna, 26, 27.
  - Psalidoprocne holomelaena, **55**.
  - Zosterops, 370.
- massaicus, Chloropeta, 235.
  - Nilaus, 328.
- maura, Motacilla, 148.
  - Saxicola torquata, 146-**148**.
- mauritii, Lanius somalicus, 8, 266, 267.
- mawensis, Cossypha caffra, 152, 153.
- maxima, Hirundo abyssinica, 50.
- mediocris, Cinnyris, 361.
  - Cinnyris mediocris, **361**, 362.
- megarhyncha, Luscinia megarhyncha, 159.
- melaena, Pentholaea, **142**.
  - Saxicola, 142.
- Melaenornis ater tropicalis, 231, 233.
  - edolioides, 231.
  - edolioides edolioides, 232.
  - edolioides lugubris, **231**, 232.
  - edolioides ugandae, 232.
  - lugubris schistacea, 232.
  - pammelaina, 231, 232.
  - pammelaina pammelaina, 231, 233.
  - pammelaina tropicalis, **233**, 234.
- melampyra, Terpsiphone, 244.
- melanauchen, Coraphites, 34.
  - Eremopteryx albifrons, 35.
  - Eremopteryx nigriceps, **34**.
- Melaniparus afer fricki, 82.
- melanocephala, Eremopteryx leucotis, 33, 34.
  - Tylibyx, 11.
- Melanocorypha sibirica, 38.
- melanocrissa, Hirundo rufula, 3, **45**-48.
- melanocrissus, Ceropsis, 45.
- melanogastra, Nectarinia melanogastra, 350, 351.
- melanoleucos, Lophoceros, 6.
- Melanopepla tropicalis, 233.
- melanoptera, Cercotrichas, 158.
  - Prionops, 320.
  - Prionops cristata, 3, 319, **320**.
- melanorhynchus, Plocepasser, 379, 381.
  - Plocepasser mahali, **379**, 380.
- melanota, Amblyospiza albifrons, 413.
- melanotis, Anaplectes, **414**, 415.
  - Ploceus, 414.
- melanoxanthus, Hyphanturgus, 409.
- melanoxanthus, Ploceus nigricollis, **409**, 410.
- melanura, Saxicola, 135.
- Melasoma edolioides, 231.
- melba, Pytilia, 441.
- Melierax metabates neumanni, 2.
- Melittophagus revoillii, 3.
- Melocichla mentalis amaurora, 209, 210.
  - mentalis orientalis, 209, 210.
- meneliki, Oriolus, 69.
- mentalis, Argya alymeri, 100, 101.
  - Platysteira peltata, 243.
- meridionalis, Aidemosyne cantans, 434.
  - Alaemon alaudipes, 28.
  - Euodice cantans, 2, **434**, 435.
  - Gypaetus barbatus, 14.
- meruensis, Chlorocichla flaviventris, 120, 121.
  - Mirafra, 19.
- Merula elgonensis, 126.
  - simensis, 130.
- microrhynchus, Bradornis, 223.
  - Bradornis microrhynchus, 223, **225**.
  - Bradyornis, 225.
- micrura, Sylvietta brachyura, 180.
- milanjensis, Turdus, 126.
- minima, Sylvietta, 181, 183.
- minimus, Alseonax minimus, 218, 219.
- Mino, 329.
  - dumonti, 329.
- minor, Apalis, 173.
  - Apalis cinerea, 173, 174.
  - Batis minor, 238.
  - Batis orientalis, 242.
  - Corvus capensis, 75.
  - Cotyle, 53.
  - Estrilda astrild, **449**, 450.
  - Habropyga, 449.
  - Nilaus, 326, 328.
  - Nilaus brubru, 8, **326**, 327.
  - Pomatorhynchus australis, 287-289.
  - Pycnonotus tricolor, 111.
  - Riparia paludicola, **53**, 54.
- minuta, Pisobia, 3.
- Mirafra africana athi, **21**, 24.
  - africanoides, 6.
  - africanoides intercedens, **24**, 25.
  - albicauda, 2, 16, **17**.
  - alopex, 24, 25.
  - candida, 2, 3, 16, **19**.
  - cantillans, 16, 19.

Mirafra cantillans chadensis, **15**.
    cantillans marginata, **15–17**, 19, 24.
    cantillans simplex, 15.
    cheniana, 16.
    collaris, 8.
    fischeri, 16, **17**, 24, 27.
    fischeri degeni, 22, **23**.
    fischeri fischeri, **22**, 23.
    fischeri kavirondensis, 23.
    fischeri omoensis, 22.
    fischeri torrida, 24.
    harterti, 21, 22, 24.
    hypermetra, 21.
    hypermetra gallarum, **19–21**.
    hypermetra hypermetra, 20.
    intercedens, 24.
    marginata, 15.
    meruensis, 19.
    passerina, **17**.
    poecilosterna massaica, 26, **27**.
    poecilosterna poecilosterna, **25**–27.
    pulpa, 2, **17**, 19.
    schillingsi, 19.
    sharpei, 8.
    tropicalis, 21.
mistacea, Prinia, 212.
    Prinia mistacea, **212–214**.
modestus, Bradornis pallidus, 225.
    Chlorophoneus sulfureopectus, 303, 304.
molitor, Batis molitor, 236, 237.
mombasae, Chlorocichla flaviventris, **120, 121**.
monacha, Oriolus, 66.
    Oriolus monacha, 67–70.
monachus, Pseudoalcippe abyssinicus, **102**.
montana, Amblyospiza albifrons, **412–**414.
    Batis molitor, 236.
    Granatina ianthinogaster, 457, 458.
monteiri, Hirundo senegalensis, 48, 49.
    Malaconotus poliocephalus, 308.
Monticola brevipes, 132.
    explorator, 132.
    rupestris, 132.
    saxatilis, **131**.
mossambicus, Laniarius ferrugineus, 280.
Motacilla aguimp aguimp, 247.
    aguimp vidua, **247**.
    alba, 246.
    alba alba, **246, 247**.
    alba dukhuensis, 246.
    atricapilla, 160.
    cinerea, 248.
    cinerea cinerea, **248**.
    cinerocapilla, 249.
    clara, **247**.
    curruca, 159.
    feldegg, 250.
    flava, 249.
    leucomela, 134.
    longicauda, 247.
    maura, 148.
Motacilla oenanthe, 134.
    phoenicurus, 158.
    rubecula, 159.
    rubetra, 149.
    samamisica, 158.
    striata, 217.
    trochilus, 162.
    vidua, 247.
Motacillidae, 246.
mozambicus, Harpolestes senegalus, 293.
    Pomatorhynchus senegalus, 294.
mülleri, Cichladusa guttata, 154.
    Telephonus senegalus, 293, 294.
munzneri, Phyllastrephus, 118.
murinus, Alseonax minimus, 218–220.
    Bradornis pallidus, 224, 225, 228.
Muscicapa chocolatina, 229.
    cinerea, 220.
    cinereola, 220.
    divaricata, 61.
    griseigularis, 222.
    lugubris, 231.
    paradisi, 244.
    stellata, 157.
    striata, 224.
    striata striata, **217**.
Muscicapidae, 217.
muscicapina, Bradyornis, 224.
Muscipeta, 244.
musculus, Aegithalus, 90.
    Anthoscopus, 90.
myochrous, Cypsiurus parvus, 2.
Myrmecocichla dubia, 140.
namaquensis, Cossypha caffra, 152.
nana, Cisticola, **207**.
natalensis, Laniarius ferrugineus, 280.
nebularia, Glottis, 3.
Nectarinia cruentata, 365.
    fazoqlensis, 360.
    habessinicus, 352.
    jacksoni, 346, 347.
    kilimensis, 347.
    kilimensis arturi, 347.
    kilimensis filiola, 347, 348.
    kilimensis gadowi, 347.
    kilimensis kilimensis, **347**, 348.
    melanogastra erlangeri, 351.
    melanogastra melanogastra, 350, 351.
    melanogastra nectarinoides, **350**, 351.
    osiris, 355.
    pulchella, 351.
    pulchella lucidipectus, **348**, 349.
    pulchella pulchella, 348, 349.
    reichenowi, 3, **351**.
    reichenowi alinderi, 351.
    tacazze, **346**.
    unisplendens, 346, 347.
Nectariniidae, 346.
nectarinoides, Cinnyris, 350.
    Nectarinia melanogastra, **350**, 351.
neglecta, Cyanomitra olivacea, 366.
Neotis heuglini, **7**.

neumanni, Anthreptes, 368.
Apalis flavida, 176, 177.
Bradornis griseus, 224.
Melierax metabates, 2.
Passer griseus, 390.
Ploceus baglafecht, 399.
Sigmodus retzii, 321.
neumanniana, Alseonax minimus, 218, 219.
neumannianus, Anthus nicholsoni, **252**, 253.
niassae, Cinnyris venustus, 357.
Nicator chloris chloris, 314, 315.
chloris gularis, **314**.
gularis, 314.
nicholsoni, Anthus, 6, 251, 253.
niger, Centrites, 251.
nigeriae, Bradornis, 223.
nigra, Campephaga, 57, 58.
nigricans, Sigmodus retzii, 320, 321.
nigricapillus, Lioptilus, 103.
nigriceps, Eremopteryx, 34, 35.
Spinus, 14, **475**.
nigrimentum, Estrilda charmosyna, 454.
Nigrita, 12.
cabanisi, 385.
nigroventris, Euplectes, 423.
Nilaus afer, 326, 328.
brubru, 326.
brubru brubru, 327.
brubru erlangeri, 326, 327.
brubru minor, 8, **326**, 327.
massaicus, 328.
minor, 326, 328.
ruwenzorii, 328.
niloticus, Enneoctonus, 273.
Lanius senator, **273**, 274.
Phoeniculus purpureus, 3.
niveoguttata, Spermophaga, 438.
niveoguttatus, Hypargos, **438**.
nivescens, Anthus nicholsoni, 8.
notatus, Oriolus, 65.
Oriolus auratus, **65**, 66.
nothus, Pomatorhynchus senegalus, 293, 294.
Notiocichla, 132.
novae-guinea, Tropidorhynchus, 329.
nubicus, Torgos tracheliotus, 3.
nubilosa, Loxia, 464.
nyansae, Batis minor, 238, 239.
Cisticola galactotes, **203**.
Cisticola lugubris, 203.
Platysteira cyanea, 242.
nyanzae, Dryoscopus gambensis, 286.
Estrilda astrild, 449, 450.
nyasae, Onychognathus walleri, 338.
nyassae, Anthus nicholsoni, 252.
Bradypterus alfredi, 170, 171.
obscurus, Alseonax minimus, 218.
obsoleta, Ptyonoprogne, 54, 55.
occidentalis, Cossypha heuglini, 149.
Dryoscopus, 284.
ochrogaster, Estrilda, 452.
Estrilda paludicola, 3, **452**.
ocularius, Hyphantornis, 409.
Odontospiza caniceps, 2, **436**.
Oenanthe argentea, 134.
bottae, 6, 136.
bottae frenata, **136**, 137.
bottae heuglini, 137.
isabellina, **136**.
leucomela cypriaca, 135.
leucomela leucomela, **134**, 135.
lugubris, 14, **135**.
oenanthe oenanthe, **134**.
phillipsi, 12.
rostrata, 134.
oenanthe, Motacilla, 134.
Oenanthe oenanthe, **134**.
ogoensis, Francolinus castaneicollis, 12.
okuensis, Alseonax minimus, 218.
oleaginus, Andropadus insularis, 122.
olivaceus, Turdus, 6.
olivae, Columba, 12.
omdurmanensis, Alaemon alaudipes, 28.
omo, Cisticola robusta, 204.
omoensis, Anthus gouldii, **255**.
Anthus leucophrys, 255.
Crateropus smithi, 94.
Cryptolopha, umbrovirens, 163.
Mirafra fischeri, 22.
Prionops cristata, 317, 318.
Seicercus umbrovirens, 14, **163**, 164.
Turdoides leucopygia, 3, 91–94.
Zosterops abyssinicus, 374.
Onychognathus, 342.
blythii, 8.
morio rüppellii, 14, **340**.
morio shelleyi, 340.
tenuirostris, 340.
walleri elgonensis, 338, 339.
walleri keniensis, 339.
walleri nyasae, 338.
walleri preussi, 338.
walleri walleri, 3, **338**, 339.
orientale, Parisoma plumbeum, 221, 222.
orientalis, Anthreptes, 367, 368.
Anthreptes orientalis, **367**–369.
Batis, 239.
Batis orientalis, 240.
Cisticola, 209.
Euodice cantans, 435.
Melocichla mentalis, 209, 210.
Pogonocichla, 156, 157.
Pomatorhynchus, 293–295.
Oriolidae, 65.
Oriolus auratus anderssoni, 65.
auratus auratus, 65, 66.
auratus notatus, **65**, 66.
larvatus kikuyuensis, 72.
meneliki, 69.
monacha, 66.
monacha kikuyuensis, 67, 71, 72.
monacha monacha, 67–70.
monacha permistus, **66**–71.
monacha reichenowi, 67, 69–72.
monacha rolleti, 67, 69–71, 72.
monachus permistus, 66.
notatus, 65.
rolleti, 71.
osiris, Cinnyris mariquensis, 354, **355**, 356.
Nectarinia, 355.

Othyphantes fricki, 397, 398.
  stuhlmanni, 398.
Otus senegalensis caecus 2, 3.
Pachyprora bella, 239.
pachyrhyncha, Poliospiza, 472.
pallida, Gymnoris pyrgita, 393.
  Hippolais pallida, 161.
  Quelea cardinalis, 2, 3, **418**, 419.
  Stelgidocichla latirostris, 122, 123.
pallidigula, Batis soror, 236, 240.
pallidior, Estrilda charmosyna, 454.
  Poliospiza, 469.
  Sylvietta, 181.
pallidirostris, Lanius, 261.
  Lanius excubitor, **261**, 262.
pallidiventris, Halcyon, 3.
pallidus, Bradornis, 223.
  Bradornis pallidus, 223–225, 228.
  Pomatorhynchus senegalus, 294.
  Pycnonotus tricolor, 111.
  Telophonus senegalus, 293.
paludicola, Riparia paludicola, 53.
pammelaina, Melaenornis, 231, 232.
  Melaenornis pammelaina, 231, 233.
Paradigalla carcunculata, 329.
paradisaea, Emberiza, 464.
  Steganura, **464**, 465.
paradisi, Muscicapa, 244.
Paridae, 82.
Parisoma, 103.
  galinieri, 103.
  holospodium, 222.
  leucomelaena somaliensis, 8.
  plumbeum orientale, 221, 222.
  plumbeum plumbeum, **221**.
  pulpum, 222.
  subcaeruleum, 103.
Parophasma, 103, 104.
Parus afer barakae, 3, 82–**84**.
  afer fricki, 2, **82**, 83.
  afer thruppi, 83.
  albiventris, 87.
  albiventris albiventris, **87**.
  albiventris curtus, 87.
  barakae, 84.
  leuconotus, **88**.
  major, 88.
  niger insignis, 85, 86.
  niger lacuum, 3, **84**–87.
  niger leucomelas, 85, 86.
  niger purpurascens, 85–87.
parvus, Bradornis, 224.
Passer castanopterus castanopterus, 387.
  castanopterus fulgens, 2, 3, **387**, 388.
  domesticus, 390.
  gongonensis, 389, **390**, 391.
  griseus eritreae, 389, 390.
  griseus neumanni, 390.
  griseus swainsonii, **389**, 391.
  griseus ugandae, 390.
  iagoensis rufocinctus, **386**.
  iagoensis shelleyi, 386.
  rufocinctus, 386.
Passeriformes, 15.
passerina, Mirafra, 17.
pauper, Phyllastrephus, 115, 116.
peasei, Estrilda, 451.
  Estrilda astrild, 449–**451**.
  Prodotiscus regulus, 3.
  Pycnonotus dodsoni, 105–107, **110**, 111.
  Pycnonotus layardi, 105, 110.
Pelicinius cruentus hilgerti, 312.
pelios, Turdus libonyanus, 124, 125.
peltata, Platysteira, 242.
Pentholaea melaena, **142**.
Penthetria laticauda suahelica, 430.
percivali, Pomatorhynchus senegalus, 295, 296.
  Pytilia, 441.
  Telephonus, 293.
perennia, Cisticola juncidis, **196**.
perkeo, Batis, 238, **240**–242.
permistus, Oriolus monacha, **66–71**.
  Oriolus monachus, 66.
personata, Gymnoschizorhis, 3, 14.
perspicillata, Terpsiphone viridis, 244, 245.
petiti, Campephaga flava, 57, 58.
Petrophila rufocinerea rufocinerea, **132–134**.
Petrophila rufocinerea sclateri, 132, 133.
  rufocinerea tenuis, 133, 134.
Petrornis, 132.
phaeocephalus, Corvus, 73.
phaeocephalus, Pycnonotus, 111.
Philemon argenticeps, 329.
phillipsi, Oenanthe, **12**.
phoenicea, Ampelis, 58.
  Campephaga, 57, **58**, 59.
  Urobrachya axillaris, 428.
Phoeniculus purpureus marwitzi, 3.
  purpureus niloticus, 3.
phoenicuroides, Lanius, 275.
  Lanius cristatus, **275**.
Phoenicurus phoenicurus phoenicurus, **158**.
  phoenicurus samamisicus, **158**.
  phoenicurus turkestanicus, 158.
phoenicurus, Motacilla, 158.
  Phoenicurus phoenicurus, **158**.
Pholia sharpii, **332**.
Pholidauges sharpii, 332.
Phormoplectes, 12.
Phyllastrephus cerviniventris cerviniventris, 118, 119.
  cerviniventris lönnbergi, 2, 3, **118**, 119.
  cognitus, 118.
  dowashanus, 118.
  fischeri fischeri, 118.
  fischeri marsabit, 118.
  fischeri placidus, **117**, 118.
  grotei, 118.
  keniensis, 117, 118.
  munzneri, 118.
  pauper, 115, 116.
  rufescens, 115, 116.
  sharpei, 115, 116.
  sokokensis, 118.
  strepitans, 3, **115**, **117**.

Phyllastrephus strepitans fricki, 115, **116**.
  strepitans strepitans, 115.
Phyllolais hildegardae, **178**.
  pulchella, **178**.
Phylloscopus collybita collybita, **163**.
  trochilus eversmanni, 162.
  trochilus trochilus, **162**, 163.
Picathartes, 329.
pileata, Camaroptera brachyura, 193.
  Camaroptera brevicaudata, 193.
Pinarochroa sordida, 14, 141.
  sordida djamdjamensis, 140, 141.
  sordida erlangeri, 12, 141.
  sordida ernesti, 141, 142.
  sordida hypospodia, **141**.
  sordida rudolfi, **141**, **142**.
  sordida schoana, **140–142**.
Pisobia minuta, **3**.
Pitta, 5.
Pitylia caniceps, 436.
placida, Xenocichla, 117.
placidus, Phyllastrephus fischeri, **117**, 118.
Planesticus helleri, 126.
Platysteira cryptoleuca, 243.
  cyanea aethiopica, **242**.
  cyanea albifrons, 242.
  cyanea nyansae, 242.
  jacksoni, 242.
  peltata, **242**.
  peltata jacksoni, **242**.
  peltata mentalis, 243.
Ploceidae, 376.
Ploceipasser donaldsoni, 381.
Plocepasser donaldsoni, **381**, 382.
  mahali erlangeri, 380, 381.
  mahali melanorhynchus, **379**, 380.
  mahali propinquatus, 380.
  melanorhynchus, 379, 381.
Ploceus aethiopicus, 415.
  alleni, 410.
  aureoflavus, 411.
  baglafecht baglafecht, 14, **399**.
  baglafecht eremobius, 399.
  baglafecht neumanni, 399.
  bojeri, 3, **410**, 411.
  castaneiceps, 411.
  craspedopterus, 420.
  cucullatus abyssinicus, **406**.
  cucullatus feminina, 406.
  cucullatus frobenii, 406.
  edmundi, 399.
  emini, 398.
  emini budongoensis, 401.
  emini emini, **400**, 401.
  fricki, 2, **397**, 398.
  galbula, **411**.
  galbula arabs, 411.
  intermedius intermedius, **402**, 403.
  kisumui, 402. 403.
  littoralis, 402, 403.
  lovati, 399.
  luteolus kavirondensis, 401.
  luteolus luteolus, **401**, 402.
  melanotis, 414.
  melanoxanthus malensis, 409.
Ploceus nigricollis melanoxanthus, **409**, **410**.
  nigricollis vacillans, 410.
  ocularius abayensis, **408**, 409.
  ocularius crocatus, 408, 409.
  ocularius suahelicus, 409.
  reichenowi, 398.
  reichenowi reichenowi, **397**.
  rubiginosus, 407.
  rubiginosus rubiginosus, **407**.
  rubiginosus trothae, 408.
  stuhlmanni, 398.
  vitellinus reichardi, 404.
  vitellinus uluensis, **403**, 404.
  vitellinus vitellinus, 404.
plumbea, Stenostira, 221.
plumbeiceps, Terpsiphone viridis, 244, 245.
plumbeum, Parisoma plumbeum, **221**.
podobe, Cercotrichas podobe, 3, **158**.
  Turdus, 158.
poecilosterna, Alauda, 25.
  Mirafra poecilosterna, **25**–27.
poensis, Alseonax, 218.
Pogonocichla cucullata keniensis, 156.
  elgonensis, 158.
  guttifer, 156–158.
  helleri, 156, 157.
  margaritata keniensis, 3, **156**, 157.
  orientalis, 156, 157.
Poicephalus flavifrons, 14.
polia, Estrilda rhodopyga, 451, 452.
poliocephalus, Lanius, 315.
  Malaconotus poliocephalus, 307–309.
  Prionops poliocephalus, **315**, 316.
poliogaster, Zosterops, **374**.
poliopleura, Emberiza, **475**.
  Fringillaria, 475.
Poliospiza atrogularis atrogularis, 471.
  atrogularis hilgerti, 470.
  atrogularis reichenowi, **469**, 470.
  atrogularis somereni, 470.
  atrogularis xanthopygius, 470.
  pachyrhyncha, 472.
  pallidior, 469.
  striolata affinis, 471, 472.
  striolata graueri, 472.
  striolata striolata, **471–473**.
  striolata ugandae, 472.
  tristriata tristriata, **468**.
polius, Turdus olivaceus, 126.
Pomatorhynchus australis ansorgei, 288.
  australis damarensis, 288.
  australis dohertyi, 287–289.
  australis emini, 288.
  australis frater, 289.
  australis kivuensis, 289.
  australis littoralis, 3, 287, 288.
  australis minor, 287–289.
  confusus, 290, 291.
  galtoni, 293.
  jamesi, 8.
  jamesi jamesi, **299**–301.
  jamesi kismayensis, 299–301.
  jamesi mandanus, 299–301.
  orientalis, 293–295.
  senegalus, 290–292.

Pomatorhynchus senegalus armenus, 290, 291, 293, 294.
  senegalus cameroonensis, 294.
  senegalus catholeucus, 289, 295.
  senegalus chadensis, 294, 296.
  senegalus erlangeri, **291**, 292, 295–297, 302.
  senegalus erythropterus, **289**–291, 294, 295.
  senegalus habyssincus, 292, 294–296.
  senegalus mozambicus, 294.
  senegalus nothus, 293, 294.
  senegalus pallidus, 294.
  senegalus percivali, 295, 296.
  senegalus remigialis, 295.
  senegalus rufofuscus, 294.
  senegalus senegalus, 294.
  senegalus sudanensis, 295, 296.
  tschagra, 290, 291.
pondoensis, Hypodes cinereus, 220, 221.
  Laniarius ferrugineus, 280.
  Prinia mistacea, 214.
praetermissa, Alauda, 30.
  Galerida theklae, 30–32.
Pratincola axillaris, 146.
preussi, Graucalus caesia, 61.
  Onychognathus walleri, 338.
princeps, Lanius excubitorius, 271.
pringlii, Dryoscopus, 3, **287**.
Prinia bairdii, 216.
  familiaris, 216.
  lepida, 216.
  mistacea, 212.
  mistacea affinis, 214.
  mistacea graueri, 212–214.
  mistacea immutabilis, 212-**215**.
  mistacea mistacea, **212**–214.
  mistacea pondoensis, 214.
  mistacea tenella, 212, 213.
  rufifrons, 210.
  somalica erlangeri, 8, **216**.
  somalica somalica, 8.
prinioides, Cisticola, 202.
  Cisticola hunteri, **202**.
Priniops, 210.
Prionopidae, 315.
Prionops concinnatus, 319.
  cristata cristata, **317**, 318.
  cristata intermedius, 318.
  cristata melanoptera, 3, 319, **320**.
  cristata omoensis, 317, 318.
  cristata vinaceigularis, 318, 319.
  cristatus, **317**.
  graculinus, 320.
  melanoptera, 320.
  poliocephalus adamauae, 316.
  poliocephalus martensi, 316.
  poliocephalus poliocephalus, **315**, 316.
  poliocephalus talacoma, 316.
pristoptera, Psalidoprocne, 56.
Prodotiscus regulus peasei, 3.
promiscua, Saxicola torquata, 146.
propinquatus, Plocepasser mahali, 380.
Psalidoprocne antinorii, **56**.
  blanfordi, 56.
  holomelaena holomelaena, 55.
  holomelaena massaica, **55**.
  pristoptera, 56.
Pseudoalcippe abyssinicus abyssinicus, 14, **101**, 102.
  abyssinicus ansorgei, **102**.
  abyssinicus claudei, 102.
  abyssinicus kilimensis, 102.
  abyssinicus monachus, 102.
  atriceps, 103.
Pseudocalyptomena, 5.
Pseudochelidon, 5.
Pseudonigrita arnaudi arnaudi, 383, 384.
  arnaudi dorsalis, 383-385.
  arnaudi emini, 383, 384.
  arnaudi kapitensis, **383**-385.
  cabanisi, **385**.
  cabanisi enchora, 386.
  enchorus, 385.
Pseudostruthus gongonensis, 390.
Psittacula krameri, 6.
Pterocles senegalensis somalicus, 2.
Ptyonoprogne obsoleta, 54, 55.
  obsoleta arabica, 54, 55.
  rufigula pusilla, 54, 55.
  rufigula rufigula, **54**, 55.
puella, Batis, 236.
  Batis molitor, **236**, 237.
  Hirundo abyssinica, 50, 51.
pugnax, Machetes, 329.
pulchella, Nectarinia, 351.
  Nectarinia pulchella, 348, 349.
  Phyllolais, **178**.
pulchellus, Malurus, 178.
pulchra, Apalis, 177.
pullaria, Agapornis, 14.
pulpa, Mirafra, 2, **17**, 19.
pulpum, Parisoma, 222.
pumilis, Bradornis microhynchus, 223, 225, 226, **228**.
  Alseonax minimus, 218-220.
  Bradyornis, 228.
pura, Graucalus caesia, **60**.
purpurascens, Parus niger, 85-87.
purpuropterus, Lamprotornis, 334.
  Lamprotornis purpuropterus, **334**, 335.
purus, Graucalus, 60.
pusilla, Euplectes franciscana, **422**.
  Ptyonoprogne rufigula, 54, 55.
  Pyromelana franciscana, 422.
  Riparia rupestris, 54.
Pycnonotidae, 105.
Pycnonotus arsinoe, 112.
  arnisoe somaliensis, 112–114.
  barbatus arsinoe, 112, 113.
  barbatus schoanus, **112**–115.
  dodsoni, 105.
  dodsoni dodsoni, **105**-109.
  dodsoni littoralis, 105, 106.
  dodsoni peasei, 105-107, **110**, 111.
  dodsoni spurius, 106, 107, **109**.
  dodsoni teitensis, 105.
  layardi fayi, 111.

Pycnonotus layardi peasei, 105, 110.
    phaeocephalus, 111.
    somaliensis, 12, 112.
    spurius, 105, 109.
    tanganjicae, 111.
    tricolor, 108.
    tricolor fayi, **111.**
    tricolor minor, 111.
    tricolor pallidus, 111.
    xanthopygos reichenowi, 115.
Pyrgita swainsonii, 389.
pyrgita, Gymnoris pyrgita, **393**, 394.
pyrgita, Xanthodina, 393.
Pyromelana franciscana pusilla, 422.
    flammiceps rothschildi, 420.
Pyrrhocorax pyrrhocorax, 11, 14.
pyrrhostictus, Lanius collaris, 263.
Pyrrhula striolata, 471.
Pyrrhulauda signata, 35.
pyrrhuloides, Pyrrhulorhyncha, 389.
Pyrrhulorhyncha pyrrhuloides, 389.
Pytilia afra, 3, **439.**
    afra cinereigula, 439.
    afra griseigularis, 439.
    belli, 441, 443.
    centralis, 441.
    citerior, 441.
    conradsi, 441.
    damarensis, 441.
    grotei, 441.
    jessi, 441.
    kirki, 441, 443.
    ladoensis, 441.
    melba, 441.
    melba affinis, 440, 441.
    melba jubaensis, 443.
    melba kirki, 440, 441.
    melba soudanensis, **440–442.**
    percivali, 441.
    tanganjicae, 441.
    useguhae, 441.
quartinia, Coccopygia melanotis, **448**, 449.
    Estrelda, 448.
Quelea cardinalis cardinalis, 418–420.
    cardinalis pallida, 2, 3, **418**, 419.
    quelea aethiopica, **415–417.**
    quelea centralis, 417.
    quelea intermedia, 416.
    quelea lathamii, 417.
    quelea sanguinirostris, 416.
quiscalina, Campephaga, 58.
raaltenii, Anthus, 253.
raffertyi, Rhinoptilus africanus, 2.
ragazzii, Eleocerthia, 366.
    Cyanomitra olivacea, **366.**
raineyi, Helionympha, 354.
ralloides, Ardeola, 3.
Rallus cinereus, 328.
regia, Vidua, 463.
regius, Cosmopsaris, 8, 337.
    Todus, 244.
reichardi, Ploceus vitellinus, 404.
reichenowi, Cinnyris, 362, 363.
    Cinnyris reichenowi. **362.**
reichenowi, Cisticola brachyptera, 206, 207.
    Dioptrornis, 230.
    Drepanorhynchus, 351.
    Gymnoris pyrgita, 393.
    Nectarinia, 3, **351.**
    Oriolus monacha, 67, 69–72.
    Ploceus, 398.
    Ploceus reichenowi, **397.**
    Poliospiza atrogularis, **469**, 470.
    Pycnonotus xanthopygos, **115.**
    Serinus, 469.
    Spiloptila, 210.
    Streptopelia, 8.
remigialis, Pomatorhynchus senegalus, 295.
    Telephonus, 293.
retzii, Sigmodus, 321.
revoillii, Melittophagus, 3.
Rhinocorax rhipidurus, **80**, 81.
Rhinoptilus africanus raffertyi, 2.
rhipidurus, Corvus, 80.
    Rhinocorax, **80, 81.**
rhodopareia, Lagonosticta, 443, 444.
    Lagonosticta rubricata, **443, 444.**
Rhodophoneus cruentus cathemagmenus, 310, 311.
    cruentus cruentus, 8, **310**, 312.
    cruentus hilgerti, 8, 310–**312**, 313.
    cruentus kordofanicus, 310, 312.
rhodopyga, Estrilda rhodopyga, **451.**
Rhynchastatus lugubris, 277.
Riparia minor schoensis, 54.
    paludicola ducis, 53.
    paludicola minor, **53**, 54.
    paludicola paludicola, 53.
    paludicola sudanensis, 53, 54.
    riparia fuscocollaris, 52.
    riparia riparia, **52.**
    riparia shelleyi, 52.
    rupestris pusilla, 54.
riparia, Hirundo, 52.
    Riparia riparia, **52.**
robusta, Cisticola robusta, 204.
    Drymoica, 204.
roehli, Alseonax minimus, 218, 219.
    Bradypterus alfredi, 170.
    Turdus olivaceus, 126.
rolleti, Oriolus, 71.
    Oriolus monacha, 67, 69–71, 72.
roosevelti, Granatina ianthinogaster, 457, 458.
rostrata, Oenanthe, 134.
rothschildi, Anthoscopus, 89.
    Anthoscopus caroli, 3, **89.**
    Campephaga, 57, 59.
    Granatina ianthinogaster, 457, 458.
    Hirundo, 42.
    Hirundo lucida, **42.**
    Laniarius funebris, 276, 277.
    Pyromelana flammiceps, 420.
Rougetius rougetii, 3, 14.
rubecula, Erithacus rubecula, **159.**
    Motacilla, 159.
ruberrima, Lagonosticta senegala, 445, 446.

rubetra, Motacilla, 149.
  Saxicola rubetra, **149.**
rubiginosa, Argya rubiginosa, **96–99, 101.**
  Crateropus, 96.
rubiginosus, Crateropus rubiginosus, 97.
  Ploceus, 407.
  Ploceus rubiginosus, **407.**
rudolfi, Pinarochroa sordida, 141, 142.
rufescens, Phyllastrephus, 115, 116.
ruficeps, Alauda, 38.
  Alauda arvensis, 38.
  Laniarius, 8.
  Tephrocorys cinerea, 38.
ruficollis, Corvus corax, 76.
rufidorsalis, Spiloptila rufifrons, 211.
rufifrons, Prinia, 210.
  Spiloptila rufifrons, **210.**
rufigula, Cotyle, 54.
  Euplectes, 423.
  Ptyonoprogne rufigula, **54**, 55.
rufipennis, Cichladusa guttata, 154.
rufocinctus, Lioptilornis, 104.
  Passer, 386.
  Passer iagoensis, **386.**
rufocinerea, Petrophila rufocinerea, **132–134.**
  Saxicola, 132.
rufofuscus, Pomatorhynchus senegalus, 294.
rufogularis, Anthus, **256.**
rufopicta, Lagonosticta, 445.
rufuensis, Turdoides hypoleuca, 94, 95.
rufula, Hirundo rufula, 46.
rufulus, Anthus, 253.
rungwensis, Linurgus kilimensis, 473, 474.
rupestris, Monticola, 132.
rüppellii, Amydrus, 340.
  Eurocephalus, 322.
  Eurocephalus rüppelli, **322**, 324, 325.
rüppellii, Onychognathus morio, 14, **340.**
ruspolii, Dinemellia, 377.
rustica, Hirundo, 40, 41, 47.
  Hirundo rustica, **40.**
ruwenzorii, Apalis, 177.
  Nilaus, 328.
Salicaria elaeica, 161.
  leucoptera, 155.
salvadorii, Bradypterus, 168.
  Galeopsar, 8, 14, **342**, 343.
samamisica, Motacilla, 158.
samamisicus, Phoenicurus phoenicurus, **158.**
sanguinirostris, Quelea quelea, 416.
saphiroi, Anthus, 255.
Sarcops, 329.
sassii, Coliuspasser albonotatus, 429.
  Serinus flavivertex, 467.
saturata, Stelgidocichla latirostris, 122, 123.
saturatior, Cossypha semirufa, **150**, 151.
  Fringillaria, 478.
  Fringillaria striolata, 3, **478.**
saturatior, Hirundo senegalensis, 48.
  Tephrocorys cinerea, 39.
saxatilis, Monticola, **131.**
  Turdus, 131.
Saxicola albiscapulata, 144.
  albofasciata, 147.
  frenata, 136.
  isabellina, 136.
  lugubris, 135.
  melaena, 142.
  melanura, 135.
  rubetra rubetra, 149.
  rufocinerea, 132.
Saxicola semirufa, 144.
  torquata albofasciata, 146, **147.**
  torquata axillaris, **146**, 147.
  torquata emmae, 146.
  torquata hemprichii, 148.
  torquata indica, 146.
  torquata maura, **146–148.**
  torquata promiscua, 146.
scapulatus, Corvus, 80.
schillingsi, Calamocichla, 116.
  Cisticola, 209.
  Cisticola cinereola, 208, **209.**
  Mirafra, 19.
schistacea, Melaenornis lugubris, 232.
Schlegelia wilsoni, 329.
schoana, Pinarochroa sordida, **140–142.**
schoanus, Malaconotus poliocephalus, 308, **309**, 310.
  Pycnonotus barbatus, **112–115.**
  Uraeginthus bengalus, **455**, 456.
  Zosterops virens, 372, 373.
schoeniclus, Emberiza, 389.
schoensis, Riparia minor, 54.
schubotzi, Arizelocichla, 119.
  Chloropeta, 234.
scioana, Chalcomitra, 365.
scioanus, Bubalornis albirostris, 376, 377.
sclateri, Apalis cinerea, 174.
  Erythropygia leucoptera, 156.
  Euprinodes cinerea, 175.
  Petrophila rufocinerea, 132, 133.
scotti, Zosterops virens, 372, 373.
scutatus, Spermestes, 432, 433.
  Spermestes cucullatus, **432**, 433.
Seicercus alpina, 163, **164.**
  budongoensis, 164.
  laeta, **164.**
  umbrovirens dorcadichroa, **164.**
  umbrovirens erythreae, 14, **164.**
  umbrovirens mackenziana, 164, **165.**
  umbrovirens omoensis, 14, **163, 164.**
  umbrovirens umbrovirens, 14, 163, 164.
  umbrovirens yemensis, **164.**
  wilhelmi, 163.
semirufa, Cossypha semirufa, 150.
  Saxicola, 144.
  Thamnolaea, 144.
senator, Lanius senator, 273.
senegalensis, Hirundo senegalensis, 45, 46, **48**, 49.

senegalus, Harpolestes, 290.
  Lanius, 292.
  Pomatorhynchus, 290–292.
  Pomatorhynchus senegalus, 294.
sephaena, Francolinus, 6.
septemstriata, Fringillaria tahapisi, 477, 478.
Serinus citrinelloides, 474.
Serinus dorsostriatus maculicollis, **465**, 466.
  flavivertex flavivertex, **467**.
  flavivertex huillensis, 467.
  flavivertex sassii, 467.
  harterti, 466.
  maculicollis, 465.
  reichenowi, 469.
  taruensis, 466.
  tristriatus, 468.
serratus, Clamator serratus, 2.
sextus, Dryoscopus gambensis, 285.
sharpei, Anthoscopus, 89.
  Argya, 98.
  Mirafra, 8.
  Phyllastrephus, 115, 116.
sharpii, Argya, 97.
  Pholia, **332**.
  Pholidauges, 332.
shelleyi, Onychognathus morio, 340.
  Passer iagoensis, 386.
  Riparia riparia, 52.
  Spreo, **343**.
sibirica, Melanocorypha, 38.
Sigmodus, 342.
  caniceps, 321.
  retzii, 321.
  retzii graculinus, **320**, 321.
  retzii intermedius, 320, 321.
  retzii neumanni, 321.
  retzii nigricans, 320, 321.
  retzii tricolor, 320, 321.
signata, Eremopteryx, **35**, 37, 38.
  Pyrrhulauda, 35.
simensis, Geokichla litsipsirupa, 14, **130**, 131.
  Merula, 130.
similis, Chloropeta, 234.
  Chloropeta natalensis, **234**, 235.
  Chlorophoneus sulfureopectus, 303.
simplex, Calamonastes simplex, **171**, **172**.
  Caprimulgus stellatus, 3.
  Cisticola chiniana, **199**.
  Mirafra cantillans, **15**.
  Thamnobia, **171**.
sincipitalis, Eremopteryx albifrons, 34, 35.
singularis, Charadriola, 256, 258.
Sitta carolinensis, 237.
sjöstedti, Bradypterus alfredi, **170**, **171**.
smithi, Eremopteryx leucotis, 34.
  Lanius collaris, 263.
  Zosterops, 371.
smithii, Crateropus, 91.
  Dryodromas, 211.
  Hirundo, 44.
  Hirundo smithii, **44**.
smithii, Spiloptila rufifrons, **211**.
  Turdoides leucopygia, **91**, 92.
Smithornis, 5.
sokokensis, Phyllastrephus, 118.
somalica, Prinia somalica, 8.
  Streptopelia capicola, 2, 8.
somalicus, Lanius, 265, 268.
  Lanius somalicus, 8, **265**–267.
  Pterocles senegalensis, 2.
somaliensis, Andropadus insularis, 121, 122.
  Batis orientalis, 237, 239, 241.
  Carine noctua, 2, 8.
  Cursorius cursor, 7.
  Eupodotis canicollis, 8.
  Galerida cristata, **29**, 30.
  Lagonosticta senegala, 445, 446, 448.
  Laniarius ferrugineus, 281, 282.
  Parisoma leucomelaena, 8.
  Pycnonotus, 12, 112.
  Pycnonotus arsinoe, 112–114.
somereni, Poliospiza atrogularis, 470.
  Zosterops virens, 372, 373.
sordida, Pinarochroa, 14, 141.
sordidus, Anthus, 251, 252.
Sorella eminibey, 3, **392**.
  eminibey guasso, 392.
soror, Batis molitor, 236, 237, 240.
soudanensis, Pytilia melba, **440**–442.
  Zonogastris, 440.
speciosa, Terpsiphone viridis, 244.
Speculipastor bicolor, 3, **332**.
Spermestes cucullatus cucullatus, 432, 433.
  cucullatus scutatus, **432**, 433.
  scutatus, 432, 433.
Spermophaga, 12.
  niveoguttata, 438.
Spiloptila clamans, 210.
  danakilensis, 210.
  reichenowi, 210.
  rufifrons rufidorsalis, 211.
  rufifrons rufifrons, **210**.
  rufifrons smithii, **211**.
  rufifrons turkana, 211.
Spinus citrinelloides citrinelloides, **474**.
  citrinelloides frontalis, 474.
  citrinelloides hypostictus, 474.
  citrinelloides kikuyuensis, 474.
  nigriceps, 14, **475**.
Spizocorys, 5, **17**.
splendidus, Lamprocolius splendidus, **334**.
  Turdus, 334.
spleniata, Tephrocorys, 39, 40.
Sporaeginthus margaritae, 453.
Sporopipes cinerascens, 395.
  frontalis abyssinicus, 395–397.
  frontalis cinerascens, **395**, 396.
  frontalis emini, 395, 396.
  frontalis frontalis, 395, 396.
Spreo fischeri, 333.
Spreo hildebrandti, 343.
  shelleyi, **343**.
  superbus, **344**.

spurius, Pycnonotus, 105, 109.
  Pycnonotus dodsoni, 106, 107, **109**.
Steganura, 463.
  aucupum, 465.
  paradisaea, **464**, 465.
Stelgidillas, 12.
Stelgidocichla, 12.
  latirostris congener, 123.
  latirostris eugenia, **122**, 123.
  latirostris latirostris, 123.
  latirostris pallida, 122, 123.
  latirostris saturata, 122, 123.
stellata, Muscicapa, 157.
Stenostira plumbea, 221.
Stephanibyx coronatus suspicax, 2.
  lugubris, 3.
stierlingi, Geokichla litsipsirupa, 130.
strepitans, Criniger, 115.
  Phyllastrephus, 3, **115**, 117.
  Phyllastrephus strepitans, **115**.
Streptopelia capicola, **6**.
  capicola hilgerti, 8.
  capicola somalica, 2, 8.
  decipiens elegans, 8.
  decipiens griseiventris, 8.
  reichenowi, 8.
  roseogrisea arabica, 2.
striata, Motacilla, 217.
  Muscicapa, 224.
  Muscicapa striata, 217.
stricta, Euplectes taha, 428.
striolata, Poliospiza striolata, **471–473**.
  Pyrrhula, 471.
Struthiolithus, 4.
struthiunculus, Choriotis kori, 3.
stuhlmanni, Cinnyris, 362, 363.
  Othyphantes, 398.
  Ploceus, 398.
  Zosterops senegalensis, 370.
  Zosterops virens, 372, 373.
Sturnidae, 328.
suahelica, Cinnyris, 354.
  Coliuspasser ardens, **430**, 431.
  Penthetria laticauda, 430.
  Terpsiphone viridis, 244, 245.
suahelicus, Batis minor, 238.
  Bradornis murinus, 228.
  Bradornis pallidus, 224, 225, **228**.
  Chlorophoneus sulfureopectus, **303–305**.
  Cinnyris mariquensis, **354**, 355.
  Cosmophoneus sulphureopectus, 305.
  Dryoscopus, 284.
  Ploceus ocularius, 409.
subadusta, Alseonax adusta, 218.
subalaris, Andropadus insularis, 121, 122.
  Bradornis pallidus, 223–225.
  Hirundo lucida, 42.
subcaeruleum, Parisoma, 103.
subcoronotus, Lanius collaris, 263.
sublacteus, Laniarius ferrugineus, 281, 282.
subocularis, Macronyx aurantiigula, 260.
subrufescens, Cossypha heuglini, 150, 151.
subrufipennis, Thamnolaea, 143.
  Thamnolaea cinnamomeiventris, **143**.
subtilis, Alseonax minimus, 218.
sudanensis, Pomatorhynchus senegalus, 295, 296.
  Riparia paludicola, 53, 54.
  Tschagra senegala, 293.
sukensis, Cinnyris venustus, 358.
sulfureopectus, Chlorophoneus sulfureopectus, 303.
superbus, Lamprocolius, 344.
  Spreo, **344**.
superciliaris, Budytes feldegg, 250.
  Camaroptera, 192.
suspicax, Stephanibyx coronatus, 2.
swainsonii, Passer griseus, **389–391**.
  Pyrgita, 389.
sycobius, Lamprocolius chalybeus, 333.
Sycobrotus emini, 400.
sylvatica, Euplectes hordeacea, 421, 422.
Sylvia atricapilla atricapilla, **160**.
  cinnamomea, 167.
  collybita, 163.
  communis, 160.
  communis communis, **160**.
  communis icterops, 160.
  curruca curruca, **159**.
  lugubris, 202.
  lypura, 137.
sylvia, Bradornis, 223.
sylviella, Anthoscopus caroli, 89.
Sylviella distinguenda, 181.
  isabellina, 185.
  jacksoni, 180.
  leucophrys, 185.
  leucopsis, 180, 181.
  major, 181, 182.
Sylvietta brachyura hilgerti, **179**.
  brachyura leucopsis, 179, **180**, 184.
  brachyura micrura, 180.
  brachyura tavetensis, 180.
  erlangeri, 185.
  gaikwari, 185.
  isabellina, **185**.
  johnstoni, 181.
  leucophrys chloronota, 186.
  leucophrys keniensis, 185, 186.
  leucophrys leucophrys, **185**, 186.
  macrorhyncha, 185.
  minima, **181**, **183**.
  pallidior, 181.
  whytii abayensis, 2, **181–184**.
  whytii fischeri, 181, 183.
  whytii jacksoni, **180–183**.
  whytii loringi, 181–184.
  whytii whytii, 181, 182.
  zedlitzi, 181.
Sylviidae, 159.
Symplectes, 12.
tacazze, Certhia, 346.
  Nectarinia, **346**.
tahapisi, Emberiza, 477.
  Fringillaria tahapisi, **477**.
talacoma, Prionops poliocephalus, 316.

Tanagra erythroryncha, 345.
tana, Cisticola robusta, 205.
tanganjicae, Pycnonotus, 111.
  Pytilia, 441.
tanganyika, Cisticola aridula, **197**.
Tangavius aeneus aeneus, 311.
  aeneus involucratus, 311.
taranta, Agapornis, 11, 14.
tardinata, Eremomela griseoflava, 188.
taruensis, Batis molitor, 236.
  Bradornis microrhynchus, 223, 225.
  Serinus, 466.
tavetensis, Euodice cantans, 434.
  Sylvietta brachyura, 180.
Tchitrea, 243, 244.
  ferreti, 243.
teitensis, Anthreptes collaris, 367.
  Coliuspasser ardens, 430, 431.
  Pycnonotus dodsoni, 105.
Telephonus jamesi, 299.
  percivali, 293.
  remigialis, 293.
  senegalus mülleri, 293, 294.
Telophonus senegalus camerunensis, 293.
  senegalus catholeucus, 293.
  senegalus erlangeri, 291, 293.
  senegalus pallidus, 293.
  trivirgatus, 293.
Telophorus dohertyi, **306**.
tenella, Prinia mistacea, 212, 213.
tenellus, Tmetothylacus, **256**.
  Macronix, 256.
tenuirostris, Lamprotornis, 340.
  Onychognathus, **340**.
tenuis, Petrophila rufocinerea, 133, 134.
Tephrocorys anderssoni, 39.
  blandfordi, 39, 40.
  cinerea cinerea, 39, 40.
  cinerea erlangeri, **38**, 40.
  cinerea fuertesi, 38, 40.
  cinerea ruficeps, 38.
  cinerea saturatior, 39.
  spleniata, 39, 40.
tephrolaema, Arizelocichia tephrolaema, 119.
tephronotus, Turdus, 3, **128**, 129.
Terpsiphone, 243, 244.
  melampyra, 244.
  viridis, 244.
  viridis ferreti, **243**-245.
  viridis harterti, 245.
  viridis perspicillata, 244, 245.
  viridis plumbeiceps, 244, 245.
  viridis speciosa, 244.
  viridis suahelica, 244, 245.
  viridis viridis, 244, 245.
tessmanni, Bradornis, 223.
Textor dinemelli, 377, 378.
  intermedius, 376.
Thamnobia simplex, 171.
Thamnolaea cinnamomeiventris albiscapulata, 143, **144**, 145.
  cinnamomeiventris bambarae, 143.
  cinnamomeiventris subrufipennis, **143**.
  cinnamomeiventris usambarae, 143.
Thamnolaea semirufa, 144.
  subrufipennis, 143.
thoracica, Apalis, 177.
thruppi, Parus afer, 83.
Timeliidae, 91.
Tmetothylacus tenellus, **256**.
Todus regius, 244.
Torgos tracheliotus nubicus, 3.
toroensis, Camaroptera, 192.
torrida, Mirafra fischeri, 24.
Trachyphonus erythrocephalus gallarum, 14.
  erythrocephalus jacksoni, 2.
transitiva, Hirundo, 41.
transvaalensis, Bradypterus, 166.
  Laniarius ferrugineus, 280.
traversii, Urobrachya, 428.
  Urobrachya axillaris, 14, **428**.
tricolor, Pycnonotus, 108.
tricolor, Sigmodus retzii, 320, 321.
Tringa caruncalata capensis, 328.
tristriata, Poliospiza tristriata, **468**.
tristriatus, Serinus, 468.
trivirgatus, Telophonus, 293.
trochilus, Motacilla, 162.
  Phylloscopus trochilus, **162**, 163.
tropicalis, Melaenornis ater, 231, 233.
  Melaeornis pammelaina, **233**, 234.
  Melanopepla, 233.
  Mirafra, 21.
Tropidorhynchus novae-guinea, 329.
trothae, Ploceus rubiginosus, 408.
tsanae, Lybius, 11, 14.
tschadensis, Lanius excubitorious, 272.
tschagra, Pomatorhynchus, 290, 291.
Tschagra senegala chadensis, 293.
  senegala sudanensis, 293.
  senegala warsangliensis, 293, 294.
Turacus leucotis donaldsoni, 14.
turatii, Laniarius ferrulgineus, 281.
Turdidae, 124.
Turdoides hartlaubii, 93.
  hartlaubii ater, 93.
  hindei, **95**, 96.
  hypoleuca, **94**–96.
  hypoleuca rufuensis, 94, 95.
  leucopygia lacuum, 91-**93**, 94.
  leucopygia leucopygia, 91, 92.
  leucopygia limbata, 91, 92.
  leucopygia omoensis, 3, 91-**94**.
  leucopygia smithii, **91**, 92.
Turdus abyssinicus, 127.
  aethiopicus, 280.
  libonyanus centralis, **124**-126.
  libonyanus cinerascens, 125.
  libonyanus costae, 125.
  libonyanus pelios, 124, 125.
  ludoviciae, 12.
  milanjensis, 126.
  olivaceus, 6.
  olivaceus abyssinicus, 14, **127**, 128.
  olivaceus elgonensis, **126**, 127.
  olivaceus helleri, 126.
  olivaceus polius, 126.
  olivaceus roehli, 126.
  olivaceus uluguru, 126.

Turdus pelios centralis, **124**.
podobe, 158.
saxatilis, 131.
splendidus, 334.
tephronotus, 3, **128**, 129.
turkana, Cercomela, 138.
Cercomela scotocerca, **138**, 139.
Spiloptila rufifrons, 211.
turkanae, Cinnyris habessinicus, 352, 353.
turkestanicus, Phoenicurus phoenicurus, 158.
turneri, Anthus gouldii, **254**, 255.
Tylibyx melanocephala, 11.
Tympanistria tympanistria fraseri, 3.
ugandae, Anthreptes collaris, **367**.
Granatina ianthinogaster, 458.
Granatina ianthogaster, 458.
Melaenornis edolioides, 232.
Passer griseus, 390.
Poliospiza striolata, 472.
ugogoensis, Uraeginthus bengalus, 455.
ukamba, Cisticola chiniana, **199**.
uluensis, Hyphantornis vitellinus, 403.
Ploceus vitellinus, **403**, 404.
uluguru, Turdus olivaceus, 126.
umbriventer, Lagonosticta rubricata, 444.
umbrovirens, Seicercus umbrovirens, 14, 163, 164.
undatus, Lybius, 14.
unicolor, Amblyospiza albifrons, 412, 413.
unisplendens, Nectarinia, 346, 347.
unitatis, Hirundo abyssinica, 50, 51.
Uraeginthus bengalus bengalus, 456.
bengalus brunneigularis, 455-**457**.
bengalus schoanus, **455**, 456.
bengalus ugogoensis, 455.
ianthinogaster, 457.
Urobrachya axillaris axillaris, 428.
axillaris phoenicea, 428.
axillaris traversii, 14, **428**.
axillaris zanzibarica, 428.
traversii, 428.
uropygialis, Cisticola juncidis, **196**.
Drymoica, 196.
Lanius collaris, 263, 264.
usambarae, Arizelocichla, 119.
usambarae, Bradypterus alfredi, 170, 171.
Thamnolaea cinnamomeiventris, 143.
usambaricus, Cinnyris mediocris, 361.
useguhae, Pytilia, 441.
vacillans, Ploceus nigricollis, 410.
verreauxi, Aquila, 3, 14.
Cinnyricinclus leucogaster, 331.
verticalis, Eremopteryx, 38.
Vidua eques, 429.
fischeri, 463, **464**.
hypocherina, 462, **463**, 464.
macroura, **460**-463.
regia, 463.
vidua, Motacilla, 247.
Motacilla aguimp, **247**.
vinaceigularis, Prionops cristata, 318, 319.
viridiceps, Apalis flavida, 8, 176, 177.
viridis, Terpsiphone, 244.
Terpsiphone viridis, 244, 245.
vitellinus, Ploceus vitellinus, **404**.
vulpina, Erythropygia leucoptera, 155, 156.
vulturinum, Acryllium, 3.
vulturnus, Macronyx croceus, 259.
walleri, Amydrus, 338.
Onychognathus walleri, 3, **338**, 339.
wambuguensis, Cisticola hunteri, 202.
warsangliensis, Tschagra senegala, 293, 294.
whytii, Sylvietta whytii, 181, 182.
wilhelmi, Seicercus, 163.
wilsoni, Schlegelia, 329.
Xanthodina pyrgita, 393.
xanthomelas, Euplectes, **423**.
Euplectes capensis, **423**–426, 428.
xanthopygius, Poliospiza, atrogularis, 470.
xanthornoides, Campephaga, 57, 59.
Xenocichla kikuyuensis, 119.
placida, 117.
yalensis, Zosterops, 373.
yemensis, Seicercus umbrovirens, 164.
zambesiensis, Euplectes capensis, 424, 425.
zanzibarica, Urobrachya axillaris, 428.
zedlitzi, Cisticola brachyptera, 206, 207.
Sylvietta, 181.
zenkeri, Anthus leucophrys, 255.
Zonogastris soudanensis, 440.
Zosteropidae, 369.
Zosterops abyssinica, 374.
abyssinicus abyssinicus, **374**.
abyssinicus omoensis, 374.
elgonensis, 373.
erlangeri, 374, 375.
jubaensis, 370.
kikuyuensis, 371.
massaica, 370.
poliogaster, **374**.
senegalensis aurifrons, 370.
senegalensis flavilateralis, 369, 370.
senegalensis fricki, 2, 3, **369**, 370.
senegalensis jubaensis, 369, **370**, 371.
senegalensis stuhlmanni, 370.
smithi, 371.
virens eurycricotus, 372.
virens garguensis, 371–373.
virens jacksoni, 371–373.
virens kaffensis, 371–373.
virens kikuyuensis, **371**–373.
virens schoanus, 372, 373.
virens scotti, 372, 373.
virens somereni, 372, 373.
virens stuhlmanni, 372, 373.
yalensis, 373.

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